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NATIONAL SECURITY RESEARCH DIVISION

Health and Economic Outcomes in the Alumni of the Wounded Warrior Project

2010–2012

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Sponsored by the Wounded Warrior Project

This research was conducted within the Forces and Resources Policy Center of the RAND National Security Research Division (NSRD). NSRD conducts research and analysis on defense and national security topics for the U.S. and allied defense, foreign policy, homeland security, and intelligence communities and foundations and other nongovernmental organizations that support defense and national security analysis.

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Preface

The Wounded Warrior Project (WWP) is a nonprofit organization that has established programs to help care for injured service members and to raise public awareness of the issues injured service members face. To examine how its alumni are doing, the organization turned to the RAND Corporation to analyze existing data it had collected from program alumni at three time points.[1] The overall objective of our data analysis is to take a more in-depth look at survey responses to explore whether outcomes differ across various subsets of WWP's database of members and, where possible, compare the experiences and outcomes of alumni with those of other ill and injured populations.

This report describes specifically how program alumni who responded to the surveys are faring in domains related to mental health and resiliency, physical health, and employment and finances, and it identifies characteristics of respondents who continue to struggle in domains identified by WWP so that the organization can target tailored services to this group. The intended audience is WWP—specifically, its executive staff, policymakers, and those who run the various programs that are created for alumni—and the alumni themselves. More generally, the report will be useful for policymakers and other individuals and organizations that serve military veterans and individuals with service-connected physical or mental injury, illness, or wound.[2]

Related RAND publications include *Invisible Wounds of War: Psychological and Cognitive Injuries, Their Consequences, and Services to Assist Recovery* (Tanielian and Jaycox, 2008) and *Health and Economic Outcomes in the Alumni of the Wounded Warrior Project* (Krull and Haugseth, 2012).

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[1] Wounded warriors who join WWP are called *alumni*. WWP alumni are military personnel who incurred service-connected injuries on or after September 11, 2001. Alumni self-select into the project and, at the time of registration, are required to provide a copy of their DD 214 (Certificate of Release or Discharge from Active Duty), their U.S. Department of Veterans Affairs (VA) award letter, line-of-duty (LOD) documentation, or current unit orders (if on active duty) to allow WWP to determine their eligibility for project and program membership. Alumnus participation in any of the programs or services offered by WWP is voluntary.

[2] *Service connected* describes an injury, illness, or wound that is connected to a service member's time in the military, whether during a deployment or not.

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Summary

Since 2003, the not-for-profit Wounded Warrior Project (WWP) has sought to offer support for and raise public awareness of those injured during service on or after September 11, 2001. To this end, WWP gives members, or *alumni*, access to programs that nurture mind and body, as well as facilitate economic well-being.

Central to WWP's success are its assessment efforts. In 2009, RAND researchers helped WWP design a web-based survey that would help the organization evaluate how well it is meeting its three primary strategic goals:

- Ensure that wounded warriors are well-adjusted in mind and spirit.
- Ensure that wounded warriors are well-adjusted in body.
- Ensure that wounded warriors are economically empowered.

The survey, designed by RAND researchers, was administered in 2010, 2011, and 2012 by the statistical research firm Westat. The firm also prepared initial interpretive reports for WWP.

WWP asked RAND to utilize the survey results to provide more-detailed analysis. Specifically, WWP was interested in the way individuals from different subgroups, as defined by demographic and service characteristics, were meeting the strategic goals. WWP also wished to gain a wider view of its organizational performance by understanding how alumnus outcomes compared with the outcomes of other veteran and nonveteran U.S. populations.

Who Are the Wounded Warrior Project Alumni Represented in the Survey Data?

The three web-based surveys were offered to all alumni in the WWP database. Westat fielded the 2010 survey between February 5 and March 22, 2010; the 2011 survey took place between March 29 and May 17, 2011; and the 2012 survey was fielded between February 28 and April 11, 2012. The alumnus database contained 3,464 members at the time of the 2010 survey. Of those, 1,121 completed the survey (a 32.4-percent response rate). In 2011, the database had expanded to include 5,870 alumni, of whom 5,867 were eligible to participate in the survey. Westat collected 2,312 responses for that year (a 39.4-percent response rate). At the time the 2012 survey was administered, the database had grown to 13,382 members, 5,692 of whom completed the survey (a 42.5-percent response rate).

Because not all alumni responded to the survey, it is unclear whether the respondents are ultimately representative of all WWP alumni. The data reveal some changes over time, but

outcomes are generally similar from year to year and offer information particular to those who participated in the survey, including the following:

- Relationship status: According to the 2010, 2011, and 2012 survey data, 60 to 65 percent of the respondents were married, 15 to 20 percent were never married, and roughly 14 percent were divorced. The few remaining were widowed, separated, or unknown.
- Gender: The vast majority (approximately 90 percent) of all respondents were male.
- Education: The data suggest that approximately 15 percent of the respondents had high school diplomas, slightly more than 40 percent had some college experience, and 20 percent had bachelor's degrees or advanced degrees.
- Employment status: The data suggest that 40 percent of all WWP alumnus respondents were employed full time and that half were either unemployed or not in the labor force. Further calculations suggest that there was an unemployment rate of 21.6 percent among the 2011 respondents and 22.4 percent among 2012 respondents.
- Health insurance coverage: A small percentage of WWP alumni lacked health insurance coverage, whereas 50 percent or more had insurance through the U.S. Department of Veterans Affairs (VA) or some other government program, such as TRICARE. In addition, 15 to 20 percent of all respondents had private insurance, and another 15 to 20 percent were covered by Medicare.
- Military experience: The majority of respondents were veterans at the time they were surveyed. Two-thirds of all respondents are or were in the Army, and another 20 percent served in the Marine Corps. Approximately 90 percent of all respondents were enlisted, and only roughly 10 percent were commissioned officers. Nearly all respondents deployed at least once, with a relatively even split between those who deployed once, twice, and three or more times.
- Injury: Approximately 30 percent of all WWP respondents reported a VA disability rating of 10–70 percent, whereas 40 to 50 percent reported the highest ratings, of 80–100 percent disability.

How Are Wounded Warrior Project Goals Faring in Alumnus Subgroups?

In this summary, as in the full report, we present initial WWP goals and findings related to the 2010, 2011, and 2012 survey populations. We then present statistical analyses that explore how different groups in the population are faring in terms of meeting WWP's goals.

Strategic Objective 1: Ensure That Wounded Warriors Are Well-Adjusted in Mind and Spirit

The Percentage of Wounded Warrior Project Alumni Who Are Accessing Health Care Is Slightly Below the Project's Goal

Goal: Increase the percentage of alumni who visit a health care professional to get help with such issues as stress, emotional, alcohol, drug, or family problems (increase access to care).

WWP's goal of 58 percent was met in 2011 among survey respondents, but only 57.4 percent of 2012 respondents indicated that they visited health care professionals, which is short

of the program goal of 59 percent. The results suggest that female respondents are more likely than male respondents to visit health care professionals, and older respondents are more likely to do so than those who are 26 to 30 years old. Alumnus respondents with higher disability ratings are more likely to seek care than those with disability ratings of 10 to 20 percent. Individuals suffering from burns or amputation are less likely than those without these injuries to seek care, but respondents who have experienced posttraumatic stress disorder (PTSD) or other mental health care issues are more likely to visit health care professionals.

The survey revealed that approximately 40 percent of respondents had difficulty getting mental health care. Reasons for this difficulty vary. Institutional barriers, cultural beliefs, and treatment preferences were the most frequently cited reasons.

Alumnus Respondents Are Seeking Operation Enduring Freedom and Operation Iraqi Freedom Veterans as a Resource

Goal: Increase the percentage of alumni who report talking with veterans of Operation Enduring Freedom (OEF) or Operation Iraqi Freedom (OIF) as a resource and tool to help cope with feelings of stress or emotional or mental health concerns.

WWP has a stated goal of 54.5 percent of alumni connecting with OEF and OIF veterans as a resource. This was achieved in both 2010 and 2011 among those who participated in the survey: Respondents to the 2010 survey connected at a rate of 58.1 percent, and respondents to the 2011 survey connected at 55.4 percent. In 2012, WWP's goal was 56.5 percent, and responses indicate that the goal is being met, with 58.9 percent reporting that they connected with OEF/OIF veterans.

When responses for all survey years were pooled, the analysis shows that female respondents were less likely than male respondents to connect with other veterans and that Army respondents are less likely than those who served in the Marine Corps. In the pooled analysis, noncommissioned officers (NCOs) and commissioned officers were more likely to seek other OEF/OIF veterans as a resource than were junior enlisted. Respondents who experienced PTSD or traumatic brain injury (TBI) were more likely than those without these injuries to use other veterans as a resource, but alumni with other injury types were not consistently more or less likely to connect with other veterans.

The data from the survey also suggested that wounded warriors who report not talking to other OEF or OIF veterans make use of other resources. The most commonly sought resource is the VA Medical Center.

Emotional Problems Still Force Many Respondents to Miss Work and Other Activities

Goal: Decrease the extent to which emotional problems interfere with alumni's work or regular activities as measured by respondents' self-reporting of such interference in the previous four weeks.

WWP's goal of 56.0 percent in 2011 was almost met in both 2010 (58.2 percent) and 2011 (59.3 percent) among those who completed the surveys. WWP's goal of 54 percent in 2012 was missed by a larger amount, with 59.9 percent of respondents indicating that emotional problems caused them to miss work or other activities.

For this strategic objective, the analysis made use of a measure of the extent to which emotional well-being has a negative impact on daily activities. The results suggest that male respondents are less likely than female respondents to report a negative impact of emotional well-being on work or other activities, and those who are currently married are less likely than

their previously married counterparts to report such an impact. Older respondents are more likely to report that their daily activities are negatively affected by their emotional well-being. The higher the respondent's disability rating, the more likely he or she is to be negatively affected by his or her emotional health. Interestingly, although some injuries, such as PTSD, spinal cord, TBI, and other mental injuries, are related to more interference with daily activities, other injuries, such as amputation and burns, are less likely to be associated with emotional health having a negative impact on the respondent's well-being.

The Program Goal of Fewer Upsetting Memories Among Alumni Is Not Being Met

Goal: Decrease the percentage of alumni whose military experiences were so frightening, horrible, or upsetting that, in the past month, they have not been able to escape from memories or effects of them, as measured by self-report.

The percentages of individual respondents thinking about events when they did not want to were higher than WWP's 76.0-percent goal. In 2010, 76.6 percent of WWP alumnus respondents reported doing so, growing to 77.8 percent in 2011 and 76.1 percent in 2012, when WWP's goal was 75.5 percent.

For the analysis of this strategic objective, we again relied on a metric in the literature, a positive screen for PTSD called the Primary Care PTSD Screen (PC-PTSD). When responses to all three surveys were pooled into one analysis, they show that the percentage of respondents who screened positively for probable PTSD was higher in both 2011 and 2012 than it was in 2010; similarly, in these analyses, individuals with higher disability ratings were more likely to screen positive than those with the lowest range of disability ratings. Respondents who were 36 to 45 years old were more likely than 26- to 30-year-olds to screen positive for probable PTSD. Respondents who reported experiencing PTSD, TBI, and other mental health conditions were more likely than those without these injuries to screen positive for probable PTSD. Results did not differ significantly by gender.

The Rate at Which Alumni Report Being Able to Adapt Is Just Short of the Wounded Warrior Project's Goal

Goal: Increase the percentage of alumni who can adapt when change occurs or can bounce back after illness, injury, or hardship (resilience), as measured by self-report.

WWP's reporting of this outcome measures only the percentage of respondents who reported adapting often or nearly all of the time when changes occur. Survey results suggest that the rate at which alumni are able to adapt falls just below WWP's goal of 57 percent: The results were 55.9 percent and 53.8 percent for 2010 and 2011, respectively. Similarly, WWP's goal increased to 58 percent in 2012, but only 55.3 percent of respondents reported being able to adapt to change.

Because WWP is interested in the ability to both adapt to change and bounce back from illness, injury, or hardship, the analysis relied on a metric in the data, the two-item Connor-Davidson Resilience Scale (CD-RISC 2), a measure specifically designed to quantify an individual's resiliency. An analysis of the CD-RISC 2 indicates that women are less resilient than men, middle-aged respondents are less resilient than those ages 26 to 30, and alumni with higher disability ratings are less resilient than those with lower ratings. The ability to adapt and bounce back is positively correlated with rank. Respondents with burns or amputation are more resilient than those who do not report having these injuries; those with PTSD, spinal-

cord injuries, TBI, or other mental health conditions are reportedly less resilient than respondents without.

Strategic Objective 2: Ensure That Wounded Warriors Are Well-Adjusted in Body

2012 Respondents Are Closer to Achieving the Goal of Fewer Interruptions to Work and Other Activities Because of Physical Health Problems

Goal: Decrease the percentage of alumni whose physical health problems have interfered with work or regular activities in the past four weeks, as measured by self-report.

WWP's target for this goal was to have only 64.0 percent of alumni suggest that they were facing disruptions due to health challenges. Survey results indicate that the program did not meet this goal in either 2010 (65.8 percent) or 2011 (64.5 percent). In 2012, WWP's goal had fallen to 62.0 percent, and 62.5 percent of respondents reported that their physical health was interfering with work and other activities.

A common metric found in the literature was used to analyze the percentage of survey respondents whose physical problems created problems with work and other activities. The data suggest that female respondents are more likely than male respondents to report that physical health has a negative impact on work or other activities. Never-married respondents report health having less of a negative impact on activities than married respondents do, and 26- to 30-year-olds report less negative impact than older respondents do. VA rating and injuries were also important predictors of the effect of physical health on work and other daily activities: The higher the VA rating, the worse the impact of physical health on work and activities; moreover, those with PTSD, spinal-cord injuries, TBI, or other physical and mental conditions reported that physical injuries had a greater impact on daily activities than those without these injuries.

Obesity Among Alumnus Respondents Is Proportionate to That of the U.S. Population

Goal: Decrease the percentage of alumni who are overweight or obese as measured by self-reported body mass index (BMI).

Each WWP respondent reported his or her height and weight in the surveys. This information was used to calculate the BMI of each member. An individual with a BMI in the range of 25 to 30 is considered overweight, and one with a BMI in excess of 30 is considered obese.

Survey results show that, in both years, approximately 40 percent of all respondents were obese; the 2011 percentage of 40.5 and the 2011 percentage of 41.6 were both higher than WWP's goal of 39.0 percent. WWP's goal in 2012 was 38.0 percent or less of respondents being obese; in actuality, that percentage was 41.5. For context, it should be noted that 35.7 percent of all U.S. adults age 20 and over are considered obese by the BMI measure (Ogden et al., 2012).

For this analysis, we examined only the percentage of respondents who had BMIs in excess of 30 percent (obese) and excluded those whose BMIs fall in the overweight range. Results show that female alumni are less likely to be obese, while individuals who are married are consistently more likely to be obese than are previously or never-married respondents. Across rank groups, junior enlisted are generally more likely than NCOs and commissioned officers to be obese. Alumni in the Marine Corps and Air Force are less likely to be obese than alumni in the Army. Age is positively correlated with obesity: Respondents age 31 and older

are more likely than 26- to 30-year-olds to be obese. Respondents who reported having PTSD are also more likely to be obese.

Strategic Objective 3: Ensure That Wounded Warriors Are Economically Empowered

The Wounded Warrior Project Goal for Increasing Attainment of Higher Education Was Met Among Survey Respondents

Goal: Increase the percentage of alumni completing associate's degrees, bachelor's degrees, or higher.

Survey respondents were asked to report the highest degree or level of school they had completed. WWP's goal of 34.0 percent of alumni completing a degree was met among 2011 survey respondents at 36.0 percent, up from 32.7 percent among 2010 respondents. WWP's goal increased to 36.0 percent in 2012, and 37 percent of respondents for that year reported having associate's degrees, bachelor's degrees, or higher.

Female respondents are more likely to earn associate's, bachelor's, or higher degrees than male respondents are. The 2010 and 2011 surveys reported higher rates of completion of associate's degrees, bachelor's degrees, or higher than the 2010 survey. Differences in education level across marital-status groups point to higher education among those married than those previously married. Commissioned-officer respondents are more likely than junior enlisted to have earned associate's degrees or higher, and this result is consistent with entrance requirements. Respondents who suffer from PTSD and TBI are less likely to have completed associate's degrees, bachelor's degrees, or higher.

The Wounded Warrior Project Goal for Increasing Alumnus Attainment of Business, Technical, and Vocational Training Was Met Among Survey Respondents

Goal: Increase the percentage of alumni completing business, technical, or vocational school.

WWP's goal of 3.7 percent of alumni achieving a certificate or diploma from a business, technical, or vocational school was not met according to the surveys in 2010, at a rate of 3.4 percent, but it was met in 2011, with 4.3 percent. WWP had an increased goal of 3.9 percent in 2012, which was met, with 4.3 percent of respondents reporting having business, technical, or vocational degrees. Older respondents are more likely to have completed this kind of degree than 26- to 30-year-olds are. Additionally, alumni in the Navy or Coast Guard are more likely than Army respondents to hold business, technical, or vocational degrees.

Respondent Rates of Employment Are Reaching Wounded Warrior Project Goals

Goal: Increase the percentage of alumni employed full time or part time or self-employed.

Survey results suggest that approximately 40 to 42 percent of respondents were employed full time and that 5 to 7 percent, each, are employed part time or are self-employed (with the remainder unemployed or not in the labor force). In almost all cases and years, WWP's employment goals were met.

We combined the full-time, part-time, and self-employment responses into one employment outcome, which had a value of 1 if the respondent was working and 0 otherwise. Respondents were more likely to indicate that they were working part or full time or were self-employed in 2011 and 2012 than in 2010. Those who are currently married are more likely to be working

than those respondents who were previously or never married. The youngest and oldest respondents are less likely to be employed than are 26- to 30-year-olds. Rank is positively correlated with the probability of working; NCOs and commissioned officers are more likely than junior enlisted respondents to be employed. Finally, individuals with higher disability ratings are less likely to be working, and respondents with mental health conditions or spinal-cord injuries are consistently less likely to be employed than those without these injuries.

The Wounded Warrior Project's Home-Ownership Goal Was Met in 2010 and 2011 but Not in 2012

Goal: Increase the percentage of alumni owning homes (with or without mortgages).

In the 2011 survey, the 56.0-percent rate of home ownership among survey respondents met WWP's goal of 55 percent. However, in 2012, WWP had a goal of 57.0-percent home ownership among alumni, and only 51.5 percent of survey respondents indicated that they own homes. Results of the analysis indicate that respondents in the Navy or Coast Guard are less likely to own homes than Army respondents are. Moreover, married and higher-ranking respondents are also more likely to be homeowners. Home ownership is also strongly related to age: The older the respondent, the higher the probability that he or she owns a house.

The Percentage of Alumni with Debt Exceeding $20,000 Is Higher Than Program Goals

Goal: Reduce the total amount of outstanding debt, excluding mortgage, that is greater than $20,000.

WWP's goal of 41 percent of alumni carrying more than $20,000 in debt was not met in either 2010 or 2011, with rates of 42.9 percent and 43.0 percent, respectively. The goal decreased to 39.0 percent in 2012, and 43.2 percent of respondents indicated debt in excess of $20,000, again not meeting WWP's goal.

Results of the statistical analysis show that respondents who were previously or never married are less likely than those who are currently married to have debt in excess of $20,000. Younger respondents are less likely, and middle-aged respondents more likely than those age 26 to 30, to have accumulated debt; NCOs and officers are more likely than junior enlisted respondents in the analysis that includes all responses from all three years.

Recommendations

Overall, many of WWP's goals were met in 2010 and 2011 among individuals who completed the surveys, but new goals were more frequently not met in 2012. There are some ways in which WWP can improve its outcomes, and we offer those here:

- WWP should use different scales to generate a better measure of alumnus challenges. Results in the report suggest that WWP alumni have experienced higher rates of screening positive for PTSD and depression than those in other studies (involving different populations, usually veterans more generally). These higher rates may be due in part to the fact that WWP alumni, by definition, have experienced service-connected disabilities.
- We recommend that WWP consider adding to its strategic objectives the eight-item Patient Health Questionnaire (PHQ-8) depression scale. Further, some of the questions in WWP's survey were derived from other instruments for the purposes of comparison

with other populations and studies (e.g., deployment combat exposure, alcohol use, smoking prevalence, sleep adequacy). Future revisions to the strategic objectives may include goals for the results of those questions.
- Create programs that can benefit specific alumnus population subgroups.

These patterns suggest that different subgroups of wounded warriors may be in need of more or different kinds of support from WWP. The organization's decisionmakers can use the information from this report to determine the degree to which strategic objectives are met for each subgroup and to set new goals and the means by which the organization—and its alumni—may reach those goals.

Acknowledgments

We would like to thank Jennifer Silva and Anna Sivonda at the Wounded Warrior Project for their support and feedback through the course of the study. We are also grateful for the contributions made by Silvia Barcellos.

Abbreviations

BLS	U.S. Bureau of Labor Statistics
BMI	body mass index
CD-RISC 2	two-item Connor-Davidson Resilience Scale
CHAMPUS	Civilian Health and Medical Program of the Uniformed Service
CPS	Current Population Survey
DoD	U.S. Department of Defense
GAO	U.S. Government Accountability Office
LOD	line of duty
MDD	major depressive disorder
NCO	noncommissioned officer
NG	National Guard
NILF	not in the labor force
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
OLS	ordinary least squares
PC-PTSD	Primary Care PTSD Screen
PHQ-8	eight-item Patient Health Questionnaire
PTSD	posttraumatic stress disorder
SSA	Social Security Administration
SSDI	Social Security Disability Insurance
SSI	Supplemental Security Income
TBI	traumatic brain injury
VA	U.S. Department of Veterans Affairs

VR-36	Veterans RAND 36-Item Health Survey
WRIISC	War Related Illness and Injury Study Center
WWP	Wounded Warrior Project

CHAPTER ONE

Introduction and Background

This document describes analysis performed by the RAND Corporation for the Wounded Warrior Project (WWP). WWP is a not-for-profit organization whose mission is to honor and empower wounded warriors by raising awareness about the needs of injured service members, helping them assist one another, and providing programs that nurture the mind and body and encourage economic empowerment and engagement.

WWP is engaged in a longitudinal data-collection effort involving five waves of a survey aimed at understanding the deployment experiences, employment status, financial circumstances, physical and emotional health, and health care needs of its alumni.[1] RAND researchers developed the survey instrument in an earlier effort. Westat administered the 2010, 2011, and 2012 surveys and prepared reports describing the results of each.[2] Table 1.1 describes the number of eligible survey participants, completed surveys, and response rate for each year. WWP also tracked the alumni who responded to multiple surveys: 499 in the 2010 and 2011 surveys; 1,567 in 2011 and 2012; and 389 in all three years.

WWP asked RAND to do a more in-depth analysis of the survey data, focusing on identifiable subsets of the respondents across which outcomes may vary, including among individuals who have responded to multiple waves of the survey, and, where possible, on how WWP alumnus outcomes compare with those of other injured and ill populations. This report documents those results.

Table 1.1
Survey Dates and Response Rates, 2010–2012

Year	Eligible to Participate	Completed Responses	Response Rate
2010 (field: February 5 to March 22)	3,461	1,121	32.4
2011 (field: March 29 to May 17)	5,867	2,312	39.4
2012 (field: February 28 to April 11)	13,382	5,692	42.5

[1] Wounded warriors who join WWP are called *alumni*. WWP alumni are military personnel who incurred service-connected injuries on or after September 11, 2001. Alumni self-select into the project and, at the time of registration, are required to provide a copy of their DD 214 (Certificate of Release or Discharge from Active Duty), their U.S. Department of Veterans Affairs (VA) award letter, line-of-duty (LOD) documentation, or current unit orders (if on active duty) to allow WWP to determine their eligibility for project and program membership. Alumnus participation in any of the programs or services offered by WWP is voluntary.

[2] The 2010, 2011, and 2012 Westat reports are Franklin, Hintze, Hornbostel, Lee, et al. (2010); Franklin, Hintze, Noftsinger, et al. (2011); and Franklin, Hintze, Hornbostel, Smith, et al. (2012).

WWP has identified three primary strategic objectives of its program, and, for each area, it has a corresponding subset of survey questions.[3] WWP uses the responses to the questions to target goals for each objective and will measure progress toward the goals using future survey results.

WWP has requested that RAND focus on outcomes relating to mental health and resiliency (strategic objective 1), physical health (strategic objective 2), and employment and finances (strategic objective 3). Therefore, this report describes the results of an analysis of a subset of questions in each of the strategic objectives. We explore findings related to five goals under strategic objective 1 (1a, 1b, 1d, 1e, and 1g); two under strategic objective 2 (2b and 2e); and five under strategic objective 3 (3a, 3b, 3c, 3e, and 3f); all goals are presented in Table 1.2.

The decision was made to not analyze all goals under strategic objectives 1 through 3, so the following discussion explains how WWP and the research team chose to analyze the goals on which this report focuses. For strategic objective 1, we did not examine goal 1c. The question associated with goal 1c is similar to that of 1d, and it asks about both physical and emotional health, thereby not allowing us to separate the emotional effects from the physical. We also did not examine goal 1f because it deals with the ability to sleep and falls slightly outside the scope of the subset of mental health questions we do analyze, those directly focusing on stress, emotional health, and access to care for these issues.

WWP has prioritized its strategic objectives and placed mental health and economic outcomes above outcomes related to physical health. Therefore, strategic objective 2 was a more

Table 1.2
Wounded Warrior Project Goals and Strategic Objectives

Goal	Strategic Objective	Description
1	Ensure that wounded warriors are well-adjusted in mind and spirit.	
	1a[a]	Increase the percentage of alumni visiting health care professionals to get help with such issues as stress, emotional, alcohol, drug, or family problems (increase access to care).
	1b[a]	Increase the percentage of alumni who talk with other OEF or OIF veterans as a resource and tool to help cope with feelings of stress or emotional or mental health outcomes, as measured by self-report.
	1c	Decrease the percentage of alumni whose physical health and emotional problems have interfered extremely, quite a bit, or moderately with their normal social activities with family, friends, or other social support during the past four weeks, as measured by self-report.
	1d[a]	Decrease the percentage of alumni whose emotional problems have interfered in the past four weeks with work or regular activities, as measured by self-report.
	1e[a]	Decrease the percentage of alumni whose military experiences were so frightening, horrible, or upsetting that, in the past month, they have not been able to escape from memories or effects of them, as measured by self-report.
	1f	Decrease the percentage of alumni who have various types of sleep problems nearly every day, as measured by self-report.
	1g[a]	Increase the percentage of alumni who can adapt when change occurs and bounce back after illness, injury, or hardship (resilience), as measured by self-report.

[3] Survey questions cover the following topic areas: demographics and military service experiences (such as deployments), employment, finances, health and daily activities, how the respondent has been feeling, health-related matters, health care, social support, attitudes, and Internet use.

Table 1.2—Continued

Goal	Strategic Objective	Description
2	Ensure that wounded warriors are well-adjusted in body.	
	2a	Increase alumni's self-reports on their health status as excellent, very good, or good.
	2b[a]	Decrease the percentage of alumni whose physical problems have interfered with work or regular activities in the past four weeks, as measured by self-report.
	2c	Increase the percentage of alumni who exercise three days per week or more (moderate-intensity exercise), as measured by self-report.
	2d	Decrease the percentage of alumni whose health currently limits them a lot with vigorous activities, such as running, lifting heavy objects, or participating in strenuous sports, as measured by self-report.
	2e[a]	Decrease the percentage of alumni who are overweight or obese as measured by self-reported BMI.
	2f	Decrease the percentage of alumni who drink alcoholic beverages two to three times per week or more, as measured by self-report.
3	Ensure that wounded warriors are economically empowered.	
	3a[a]	Increase the percentage of alumni who complete associate's or bachelor's degrees or higher.
	3b[a]	Increase the percentage of alumni who complete business, technical, or vocational school (certificate or diploma).
	3c[a]	Increase the percentage of alumni who are employed full time or part time or self-employed.
	3d	Increase the median income for full-time employment and for part-time employment among alumni.
	3e[a]	Increase the percentage of alumni who own homes (with or without mortgages).
	3f[a]	Reduce the percentage of alumni who carry more than $20,000 in nonmortgage debt, as measured by self-report.
	3g	Increase the percentage of alumni whose current financial status is better than that of a year ago, as measured by self-report.

NOTE: OEF = Operation Enduring Freedom. OIF = Operation Iraqi Freedom. BMI = body mass index.

[a] These are the goals analyzed in this report.

minor focus of this report. However, WWP specifically requested that we conduct an analysis of goal 2b, the percentage of alumni whose physical health has interfered with work or other daily activities. In addition, we identified a discrepancy in the wording of goal 2e and the numbers that were compiled by WWP, so we present additional findings to allow WWP to refine its goals and objectives for individuals who have BMI in the overweight or obese range.

Employment and financial outcomes are the third priority of WWP. We did not examine goal 3d, an increase in mean or median income, because it is a condition of being employed and at the same level from year to year (in other words, a respondent who is employed full time in 2010 and part time in 2011 will almost certainly earn less in 2011, but that is a condition of employment level, not earning potential). Instead, we focused our analysis on the employment status of WWP alumni. Finally, strategic objective 3g is a subjective measure and may be influenced by multiple factors, so we opted to not analyze the individuals' assessments of their financial status.

The remainder of this report considers each of the three strategic objectives and the selected goals in turn. We restate the known results and examine the possibility that the outcomes differ across various subsets of the alumnus population. Where possible, we also draw comparisons with other data on veterans to allow WWP to gauge the success of its alumni in terms of health and economic outcomes relative to that of other groups.[4] All of the results in this document should be viewed as relationships or associations between question responses, except in instances in which the survey question itself implies causality. For instance, in the analysis that follows, we consider the possibility that those individuals who report not talking with OEF or OIF veterans about their emotional problems may be utilizing other resources to cope. We do not intend to imply that some survey respondents do not talk with OEF or OIF veterans because they are instead working with a VA Medical Center but rather simply that there is a menu of resources available to veterans, and a less-than-desired use of one does not mean that the veteran is not otherwise finding resources to cope.

[4] We note here that comparisons with other studies must be viewed with caution. First, this report analyzes survey data from a population of veterans who are, by definition, wounded. This implies that they likely report higher rates of illness or hardship than general veteran and other populations. Second, as we explain below, it is not clear that the survey respondents are representative of the WWP population, so all results presented here reflect only the sample of respondents and cannot be generalized.

CHAPTER TWO

Survey Methodology

WWP maintains a database of alumni who self-register for participation in the project. At the time of registration, each individual provides information on his or her branch of service, current service status, rank, type of discharge, dates of service, and injuries incurred.

All three surveys, 2010 through 2012, were web-based and administered to all alumni in the WWP database. Westat fielded the 2010 survey between February 5 and March 22, 2010, a time span of six weeks; the 2011 survey took place over seven weeks, between March 29 and May 17, 2011; and the 2012 survey was administered over the course of six weeks, from February 28 to April 11, 2012. Most of the communication between Westat and alumni was done by email, with the exception of the final reminder, which was sent by postal mail. Alumni were first notified that the survey was forthcoming, then were invited to participate in the survey, and finally received a series of reminders or thank-you notes. In 2010, five reminders were sent; in 2011, there were seven; and alumni in the 2012 database received six reminders.

The alumnus database contained 3,464 members at the time of the 2010 survey. Of those, 1,121 completed the survey, resulting in a 32.4-percent response rate. In 2011, the database had expanded to include 5,870 alumni, of whom 5,867 were eligible to participate in the survey. Westat collected 2,312 responses, which is a 39.4-percent response rate. By 2012, the database had grown to 13,382 eligible warriors, of which 5,692 responded, for a response rate of 42.5 percent.

With little known about the population of WWP alumni, it is not clear whether the sample of survey respondents is representative of the broader population of individuals using WWP services.[1] For instance, if individuals who are unemployed have more time to complete the survey, they would be overrepresented in the sample of respondents. By way of a second example, it is unclear whether individuals suffering from mental health problems would be more or less likely to respond to the survey. On one hand, they may perceive there to be a stigma associated with such health needs, and therefore may be underrepresented in the sample if they are less likely than those without mental health needs to complete it. On the other hand, given that the survey focuses in part on the needs of this population and barriers to receiving

[1] When an individual registers for WWP, he or she is required to provide the following information: name and contact information, date of birth, branch of service, service status (e.g., active duty, retired), rank, type of discharge, service start and end dates, injury date, and type of injury. He or she may also provide description of injury; VA rating; whether he or she has applied for VA benefits, Supplemental Security Income, or Social Security Disability Insurance; VA claim status (pending, appeal); and location of hospitalization. WWP maintains a database of all registrants and therefore has this information for most of its alumni, especially those who registered most recently. However, we had access to only survey data, not the registrant database, and therefore were unable to use these data to determine whether survey respondents were representative of the WWP population of alumni.

the care they need, those with mental health disorders may find that the survey serves as a voice or outlet by which they may safely express their needs. In that case, alumni with mental health needs may be more likely than others to complete the survey, and therefore may overrepresent the WWP alumnus population with these health conditions. In any case, no inferences should be made about the population of WWP alumni or about wounded warriors in general.

In the absence of information about the underlying population of wounded warriors, it is not possible to make a determination about the representativeness of the sample of respondents or to construct survey weights. Therefore, tests of statistical significance presented in this report allow us to draw conclusions about responses only among the sample of WWP alumni who completed the surveys.

CHAPTER THREE

Analysis and Results

This chapter presents our main analyses, beginning with a description of the respondents from the three survey years, and followed by an analysis of each strategic objective.

Before detailing the results of the analysis of the strategic objectives, we describe the demographic and service characteristics of the respondents. Table 3.1 shows the details for three data sets: the 2010, 2011, and 2012 full sets of responses.[1]

The vast majority (approximately 90 percent) of all respondents were male. Ninety percent of all respondents were under the age of 50, with 40 percent between the ages of 30 and 39 and the remaining 50 percent split evenly between 20–29 and 40–49. Sixty to 65 percent of the respondents were married, 15 to 22 percent had never been married, and roughly 14 percent were divorced, with the few remaining widowed, separated, or unknown.

Table 3.1
Descriptive Statistics on the Survey Respondents (%)

Statistic	2010 (wave 1: 1,121 respondents)	2011 (wave 2: 2,312 respondents)	2012 (wave 3: 5,692 respondents)
Marital status			
Married	60.93	64.01	64.79
Widowed	0.45	0.17	0.28
Divorced	13.92	14.88	14.58
Separated	3.12	3.94	4.43
Never married	21.32	16.78	15.78
Missing	0.27	0.22	0.14
Gender			
Male	92.86	89.53	89.56
Female	6.87	10.03	9.91
Missing	0.27	0.43	0.53

[1] Our 2011 report included descriptive statistics for 2010 and 2011 respondents in the cohort of 499 repeat respondents. We omit those results in this report because of the many combinations of cohorts (2010 and 2011; 2011 and 2012; 2010 and 2012; and 2010, 2011, and 2012). However, the analysis that follows reports on three cohorts: 2010 and 2011; 2011 and 2012; and 2010, 2011, and 2012. At WWP's request, we excluded the cohort of respondents who completed only the 2010 and 2012 surveys.

Table 3.1—Continued

Statistic	2010 (wave 1: 1,121 respondents)	2011 (wave 2: 2,312 respondents)	2012 (wave 3: 5,692 respondents)
Age			
21–29	29.53	25.91	24.24
30–39	39.43	39.66	41.83
40–49	22.57	25.04	24.98
50–59	6.78	7.61	7.71
60+	1.07	0.99	0.84
Missing	0.62	0.78	0.39
Educational attainment			
Less than 12th grade	0.36	0.35	0.39
High school diploma	15.52	14.66	15.18
GED	3.03	3.42	3.64
Business, technical, or vocational	3.39	4.28	4.32
Some college (<1 year)	15.17	14.27	13.02
Some college (1+ year)	29.71	26.86	26.44
Associate's degree	11.69	12.41	13.11
Bachelor's degree	15.25	16.83	17.11
Master's degree	4.91	5.62	5.97
Professional or doctorate	0.71	1.08	0.79
Missing	0.27	0.22	0.04
Employment status			
Full time	40.77	41.96	43.48
Part time	5.00	6.19	6.89
Unemployed or NILF	52.54	50.61	49.33
Unemployed	—	13.28	14.51
NILF	—	37.24	34.61
Missing	—	0.09	0.21
Missing	1.69	1.25	0.30
Health insurance[a]			
None	5.89	4.89	4.87
Private insurance	16.86	21.41	19.40
Medicare	18.38	15.79	13.86
Medicaid	2.59	2.94	2.39
VA	58.43	55.67	54.25

Table 3.1—Continued

Statistic	2010 (wave 1: 1,121 respondents)	2011 (wave 2: 2,312 respondents)	2012 (wave 3: 5,692 respondents)
Other government (e.g., TRICARE, CHAMPUS)	54.50	49.57	51.53
Other	2.77	1.69	2.02
Current military status			
Active duty	—	13.41	15.71
Activated NG or Reserve	—	9.04	8.82
NG or Reserve (not activated)	—	8.48	10.07
Retired (medical)	—	36.55	32.36
Retired (nonmedical)	—	5.62	5.71
Separated or discharged	—	26.25	26.90
Missing	—	0.65	0.44
Branch of service			
Army	65.48	67.52	66.60
Marine Corps	21.77	18.30	18.04
Air Force	7.58	6.79	7.77
Navy	7.23	8.82	8.33
Coast Guard	0.09	0.43	0.47
Highest pay grade			
E1–E4	28.10	29.11	28.64
E5–E9 (NCO)	59.68	60.21	60.77
O1–O3	5.89	4.67	4.59
O4–O6	4.64	4.28	4.30
O7–O10	0.27	0.17	0.18
Warrant officer	1.16	1.30	1.26
Missing	0.27	0.26	0.26
Total number of deployments			
0	1.43	2.90	3.20
1	36.31	33.43	31.80
2	28.19	28.03	28.97
3+	34.08	35.64	33.05
Missing	0.89	2.16	2.99
Deployed to a combat zone (if ever deployed)	—	95.03	97.98

Table 3.1—Continued

Statistic	2010 (wave 1: 1,121 respondents)	2011 (wave 2: 2,312 respondents)	2012 (wave 3: 5,692 respondents)
VA disability rating[b]			
10 or 20	2.94	3.42	3.62
30 or 40	5.62	7.44	8.03
50, 60, or 70	18.73	18.77	18.99
80 or 90	18.82	17.73	16.65
100	28.37	22.45	19.22
No VA disability rating	13.56	15.10	16.09
Claim pending	11.42	14.49	16.95
Missing	0.54	0.61	0.44

NOTE: Because of rounding, percentages might not sum to 100 exactly. GED is a registered trademark of the American Council on Education. NILF = not in the labor force. CHAMPUS = Civilian Health and Medical Program of the Uniformed Service. NG = National Guard. NCO = noncommissioned officer.

[a] The health insurance numbers add up to far more than 100 in a given column because an individual may carry multiple forms of insurance.

[b] Disability ratings range from 0 to 100 percent and can have any one of the following values: 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, or 100. In other words, no one is issued a disability rating between any of these values (e.g., 25 percent). The rows represent two or three possible disability ratings (e.g., 10 percent and 20 percent in the "10 or 20" row).

With regard to educational attainment, less than 1 percent of respondents had less than a 12th-grade education; 20 percent had high school diplomas or GED; 40 percent had some college; 15 percent had business, technical, vocational, or associate's degrees; and 20 percent had bachelor's degrees or higher. These results are similar across all three survey years. By comparison, the U.S. Bureau of Labor Statistics (BLS) reported that, as of 2009, 2 percent of Gulf War II–era veterans had less than high school diplomas, 29 percent were high school graduates with no college, 46 percent had some college or associate's degrees, and the remaining 23 percent had college degrees or higher (see BLS, 2010). Therefore, smaller percentages of WWP alumnus respondents had less than high school diplomas, high school diplomas, or college degrees, but a larger percentage had some college.

All three surveys asked respondents whether they were working for pay (full time or part time), where anyone who is not working for pay was considered unemployed or NILF. The 2010 survey included a question that read, "Are you looking for work?" but was modified in the 2011 (and used again in 2012) survey to "During the last four weeks, did you actively look for work?" The 2010 question cannot be used to differentiate between unemployment and NILF, but the 2011/2012 question is consistent with the one used by BLS and the Census Bureau in the Current Population Survey (CPS), the instrument used to compute the headline unemployment rate.[2] Approximately 40 percent of all WWP alumnus respondents were employed full time, and approximately half were either unemployed or NILF. Using the 2011/2012 ques-

[2] The unemployment rate is a measure of the prevalence of unemployment and is calculated as a percentage by dividing the number of unemployed individuals by the number of all individuals in the labor force, including those who are employed and those who are not employed but are actively searching for work.

tion concerning whether the individual was actively searching for work in the previous four weeks, we compute that one-third of those respondents were unemployed (versus NILF). Using the standard definition of *unemployment*,

$$\frac{\text{number unemployed}}{\text{number employed} + \text{number unemployed}}.$$

This translates to an unemployment rate of 21.62 (22.37) percent among the full set of 2011 (2012) responses.[3]

A small percentage of WWP alumni lack health insurance coverage, whereas 50 percent or more have insurance through a VA or other government program, such as TRICARE or CHAMPUS. In addition, 15 to 20 percent of all respondents had private insurance or Medicare or both.

We now turn to characteristics of the respondents' military experience. The majority of individuals in the surveys were veterans, while some were still serving on active duty or in the NG or Reserve. Two-thirds of all respondents were or had been in the Army, and another 20 percent served or had served in the Marine Corps. In the regression models, we categorize respondents into those who reported only one of Army, Marine Corps, Air Force, and Navy or Coast Guard. Respondents who selected more than one service are included in a different category, and results for those respondents are reported under the "More than one service" variable. Respondents who did not select a service were also included in the regressions, but they are not reported in the tables. Approximately 90 percent of all respondents were enlisted, and only a small percentage (roughly 10 percent) were officers.

Nearly all respondents had deployed at least once, with a relatively even split between those who deployed once, twice, or three or more times. Among deployers, nearly everyone had served in a combat zone at least once.

Finally, we present data on VA disability ratings based on respondents' self-reports of their own ratings. Disability ratings range from 0 to 100 percent and can have any one of the following values: 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, or 100. In other words, no one is issued a disability rating between any of these values (e.g., 25 percent). Approximately 30 percent of all WWP respondents reported VA disability ratings of 10, 20, 30, 40, 50, 60, or 70 percent, whereas 40 percent reported the highest ratings of 80-, 90-, or 100-percent disability. A 2009 U.S. Government Accountability Office (GAO) report documented that more than 90 percent of wounded warriors surveyed were receiving disability benefits from the VA only (GAO, 2009). Among the 3.6 percent who were collecting benefits from the Social Security Administration (SSA) (through the Social Security Disability Insurance [SSDI] and Supplemental

[3] In the full set of 2011 (2012) responses, 970 (2,475) individuals reported working full time, 143 (392) reported working part time, and, among the 1,168 (2,796) who were not working for pay, 861 (1,970) had not actively looked for work in the previous four weeks (and were therefore NILF) and 307 (826) had. Therefore, the unemployment rates for 2011 and 2012 are, respectively,

$$\frac{307}{970 + 143 + 307} = 21.62 \quad \text{and} \quad \frac{826}{2,475 + 392 + 826} = 22.37.$$

Security Income [SSI] benefit programs), more than 50 percent had disability ratings of 90 or 100 percent.

Methodology

For each strategic objective, we restate the individual goal and describe the way WWP has defined and measured the goal. We then present a statistical analysis of the outcome (WWP's goal) by running regressions on both the full set of responses for all three survey years (1,121 individuals in 2010, 2,312 in 2011, and 5,692 in 2012), as well as among three cohorts: respondents who answered all three surveys, 2010, 2011, and 2012 (n = 389); those who answered the 2010 and 2011 surveys (n = 499); and those who answered the 2011 and 2012 surveys (n = 1,576). In other words, we consider the effects of various alumnus characteristics and experiences (the explanatory variables) on the outcomes of interest (dependent variables). For instance, WWP's goal 1a is to observe an increase in the percentage of alumni who visit health care professionals to get help with such issues as stress, emotional, alcohol, drug, or family problems (increase access to care). The dependent variable is a 0/1 indicator of whether the alumnus sought help from a health care professional (0 = no; 1 = yes). Because the decision to seek care likely varies by individual characteristics, such as gender, age, rank, and military experiences, we use those and other variables to explain the outcome.

The explanatory variables that we include in our analyses are those characteristics of the individual or his or her service experience that may be related to the outcome of interest. For instance, individuals who have high disability ratings are probably more likely to need and seek professional health care, potentially less physically healthy if their injuries prevent them from maintaining an exercise routine, and may have difficulty finding work or obtaining advanced degrees. The full list of characteristics that we include in our analyses is as follows:

- year (to observe whether outcomes change over time, as WWP has as its established goals)
- gender
- branch of service[4]
- marital status
- age
- disability rating
- rank[5]
- type of injury.

[4] We combine Coast Guard and Navy into one category because of the very small number of Coast Guard respondents (less than 0.5 percent each year) and because, during wartime, the Coast Guard falls under the Department of the Navy. One of the criteria for participation in WWP is a service-connected disability since 9/11, so all alumni served during a time of war. There are also some respondents who select more than one service (Air Force, Army, Marine Corps, or Navy or Coast Guard). We control each service by itself and separately for a multiple-service response. All categories are measured against the same data for those who are not in that particular branch of service.

[5] General officers were dropped from our analyses for two reasons. First, there are so few of them in the data, and they are likely different enough from the rank category below them (O4–O6) that it does not make sense to create an O4–O10 category. Second, they are potentially identifiable in the data. In other words, the percentage of general officers in the armed forces is small, and an even smaller percentage of them likely qualify for WWP, so including them in our analyses may allow a reader to identify who they are.

The tables that follow report coefficients, which should be interpreted as the correlation between the explanatory (independent) variable and the outcome (dependent) variable, holding constant all other explanatory variables. For example, the estimated coefficient on the gender variable in our analysis of goal 1a should be interpreted as how being female, relative to male, relates to the decision to seek help from a health care professional. A positive coefficient indicates that female respondents are more likely than male respondents to seek care, holding all other explanatory variables constant (i.e., between a male and female respondent of the same rank, age, with the same VA rating, and so on, the female alumnus is more likely to seek care). Coefficients that test as significantly different from zero are indicated with asterisks. In the analysis that follows below, we focus the discussion on the coefficients that are statistically different from zero, unless otherwise noted. We caution again that these results should be interpreted only for the populations of respondents, not among the database of alumni or wounded warriors in general, because of the lack of information about the characteristics of all alumni, and therefore an unweighted survey and analysis.

When the outcome under analysis is a 0/1 indicator (such as the variable under objective 1a, which measures whether the alumnus sought help from a health care professional), we use a logit regression model, which is usually used to model such dichotomous outcome variables.

In the logit model, the log odds of the outcome under consideration is modeled as a linear combination of the explanatory variables. These results can be converted to odds ratios, as we do throughout this report. The results presented should be interpreted as the odds that an outcome will occur given a particular characteristic, compared with the odds of the outcome occurring in the absence of that characteristic. For example, in all tables, we present the relationship between being female, compared with being male, and the outcome of interest. If the female coefficient, or result, is less than 1, it means that female respondents are *less* likely than male respondents to experience the outcome. If the coefficient is greater than 1, it means that female respondents are *more* likely than male respondents to experience the outcome. For a characteristic with more than two categories other than injury type (such as age or rank), the comparison should always be made with the omitted category, which is denoted in the table.

For continuous outcomes, on the other hand, we will use the traditional ordinary least squares (OLS) model, in which the estimated coefficients can be interpreted as the incremental change in the outcome under analysis for every unit change in the explanatory variable, holding all other explanatory variables in the model constant. For example, if the coefficient on the O1–O3 variable is 3.146, that implies that the outcome of interest is 3.146 units higher, on average, for alumni with a rank of O1–O3 than those at E1–E4, holding all other demographic and service characteristics constant.

WWP has defined goals over time. For instance, the organization hopes to see a *decrease* in the percentage of alumni who report that they are overweight or obese as measured by BMI (goal 2e). To examine changes over time, we include in our regressions year dummy variables (0 or 1 indicating whether the response is from that particular year). Those coefficients should be interpreted as evidence of statistically significant increases or decreases, in the dependent variable, in that year relative to the omitted year. In other words, in the regression for the cohort of 499 repeat respondents in 2010 and 2011, a statistically significant negative coef-

Another potential characteristic to include is education; however, because it is so highly correlated with age and rank, we have excluded it from our analyses.

ficient (in OLS regressions) on the 2011 dummy variable would indicate that the respondents experienced a decrease in the outcome variable, relative to 2010, holding all other explanatory variables constant (in a logit regression, the coefficient would be less than 1 if the outcome decreases over time).[6]

WWP's survey is made up of ten sections—a comprehensive series of questions about demographic and service characteristics, employment, finances, health and daily activities, how the respondent has been feeling, health-related matters, health care, social support, attitudes, and Internet use. The questions corresponding to the goals for each strategic objective come from many parts of the survey. Although this report focuses almost exclusively on the goals outlined in the strategic objectives, we had access to the entire set of survey questions and responses. In some cases, to further explore one of WWP's goals, we rely on other questions (for instance, if a respondent did not use a particular resource in which WWP is interested, we explore what other resources may be used instead). In addition, as part of our analysis of WWP's goals, we utilized metrics used in the literature, including a screening for posttraumatic stress disorder (PTSD), depression, emotional and physical health scales, and a measure of an individual's ability to respond to changes or hardships. We describe each of these metrics in the context of the relevant WWP goal. We now consider each of the strategic objectives, and the goals associated with each, in turn.

Ensure That Wounded Warriors Are Well-Adjusted in Mind and Spirit

Strategic Objective 1a: Increase the Percentage of Alumni Visiting Health Care Professionals to Get Help with Such Issues as Stress, Emotional, Alcohol, Drug, or Family Problems (Increase Access to Care)

The question associated with this objective reads, "In the past 3 months have you visited any professional like a doctor, a psychologist or a counselor to get help with issues such as stress, emotional, drug, or family problems?"

Results from Westat's reports were summarized by WWP and are reproduced here. As shown in Table 3.2, among the full sets of responses, survey responses fell short of WWP's 2012 goal of 59 percent, after the overall set of responses met the 2011 goal.

Our analysis of this objective is twofold: (1) We consider whether certain demographic characteristics, including marital status, gender, VA rating, and rank, are correlated with the outcome, and (2) because this question is broad to include any health care professional, we also explore a series of follow-up questions more focused on mental health professionals.

Table 3.3 reports results for an analysis of the effect of various individual and service characteristics on the percentage of survey respondents reporting having seen a professional for a behavioral health care or family issue within the previous three months.[7] The first column pools all three survey years (2010–2012); the second set of results is the cohort that answered

[6] We do not interact year dummy variables with the other explanatory variables, which is to say that increases or decreases cannot be detected over time among individuals with a particular characteristic (i.e., female respondents in 2011 compared with female respondents in 2010), only among all survey respondents in that year.

[7] Although it is WWP's goal to see an increase in the percentage of alumni visiting health care professionals, it is likely true that not all alumni have a need for health care that addresses stress, emotional, alcohol, drug, or family problems. Our analysis does not control for whether the alumnus *needs* this type of care.

Table 3.2
Do Wounded Warriors Visit Health Care Professionals to Get Help with Behavioral or Family Problems?

Survey	Baseline (wave 1)	2011 (wave 2)	2012 (wave 3)
Overall	51.16%	58.46%	57.37%
	(1.56)	(1.06)	(0.66)
2010, 2011, and 2012	57.26%	55.11%	56.17%
	(2.57)	(2.58)	(2.55)
2010 and 2011	56.16%	53.50%	
	(2.30)	(2.30)	
2011 and 2012		58.99%	56.63%
		(1.27)	(1.26)
Goal		58%	59%

SOURCE: Overall and cohort percentages were computed by Westat and compiled by WWP as it determined objectives and goals for its alumni. Table reproduced from materials provided by WWP.

NOTE: Standard errors are given in parentheses. Standard error is a measure of the variation in survey responses.

Table 3.3
Do Wounded Warriors Visit Health Care Professionals to Get Help with Behavioral or Family Problems? Logit Model

		Cohort		
Variable	Pooled Responses (8,586 observations)	2010, 2011, and 2012 (1,106 observations)	2010 and 2011 (919 observations)	2011 and 2012 (3,015 observations)
Female	1.776	3.446	3.241	2.076
	[0.181]**	[1.464]**	[1.318]**	[0.388]**
Year (2010 omitted)				
2011	0.901	0.774	0.702	1.194
	[0.074]	[0.110]	[0.096]**	[0.082]**
2012	0.847	0.798		
	[0.064]*	[0.125]		
Service (Army omitted)				
Navy or Coast Guard	1.033	0.912	0.939	1.337
	[0.124]	[0.417]	[0.416]	[0.302]
Marine Corps	0.941	1.13	1.053	1.13
	[0.074]	[0.281]	[0.259]	[0.164]
Air Force	1.405	0.799	1.175	1.192
	[0.177]**	[0.315]	[0.512]	[0.291]

Table 3.3—Continued

Variable	Pooled Responses (8,586 observations)	Cohort		
		2010, 2011, and 2012 (1,106 observations)	2010 and 2011 (919 observations)	2011 and 2012 (3,015 observations)
More than one service	0.983	0.7	0.747	0.941
	[0.113]	[0.246]	[0.283]	[0.188]
Marital status (married omitted)				
Previously married	1.147	1.113	1.004	1.07
	[0.082]	[0.268]	[0.255]	[0.139]
Never married	0.887	1.155	0.796	1.05
	[0.070]	[0.323]	[0.227]	[0.158]
Age (26–30 omitted)				
18–25	1.327	2.573	1.882	1.304
	[0.169]*	[1.364]	[1.074]	[0.319]
31–35	1.256	1.428	1.671	1.483
	[0.094]**	[0.331]	[0.400]*	[0.204]**
36–40	1.668	2.001	1.905	2.155
	[0.150]**	[0.592]*	[0.562]*	[0.351]**
41–45	1.655	2.041	1.547	2.345
	[0.161]**	[0.619]*	[0.452]	[0.421]**
46–50	1.958	3.402	4.489	2.506
	[0.213]**	[1.293]**	[1.891]**	[0.486]**
51–55	1.869	4.926	3.563	3.41
	[0.284]**	[2.340]**	[1.880]*	[0.933]**
56+	1.562	3.794	4.283	2.416
	[0.287]*	[2.014]*	[2.467]*	[0.645]**
VA rating (10 and 20 omitted)				
30 or 40	1.042	0.417	0.618	0.893
	[0.177]	[0.200]	[0.416]	[0.253]
50 or 60	1.68	1.031	1.605	1.71
	[0.272]**	[0.465]	[1.027]	[0.457]*
70 or 80	1.971	1.298	2.74	1.936
	[0.308]**	[0.533]	[1.704]	[0.489]**
90 or 100	2.365	1.485	3.279	2.671
	[0.365]**	[0.574]	[2.001]	[0.666]**

Table 3.3—Continued

Variable	Pooled Responses (8,586 observations)	Cohort: 2010, 2011, and 2012 (1,106 observations)	Cohort: 2010 and 2011 (919 observations)	Cohort: 2011 and 2012 (3,015 observations)
Pending or under appeal	2.831	1.926	3.724	2.824
	[0.442]**	[0.887]	[2.343]*	[0.729]**
No rating	1.846	0.621	0.956	1.901
	[0.291]**	[0.274]	[0.613]	[0.501]*
Rank (E1–E4 omitted)				
E5–E9	0.945	0.784	0.751	0.922
	[0.064]	[0.177]	[0.166]	[0.114]
Warrant officer	0.652	0.413	0.304	0.511
	[0.157]	[0.342]	[0.327]	[0.220]
O1–O3	0.759	0.753	0.49	0.697
	[0.107]*	[0.402]	[0.238]	[0.187]
O4–O6	0.74	0.579	0.662	0.524
	[0.103]*	[0.257]	[0.328]	[0.126]**
Injury type				
Amputation	0.455	0.369	0.341	0.438
	[0.050]**	[0.109]**	[0.095]**	[0.083]**
Burn	0.655	0.705	0.517	0.881
	[0.089]**	[0.275]	[0.180]	[0.227]
PTSD	5.306	5.945	6.75	5.571
	[0.380]**	[1.401]**	[1.724]**	[0.732]**
Spinal cord	1.222	1.188	0.997	1.119
	[0.088]**	[0.278]	[0.267]	[0.136]
TBI	1.368	1.241	1.3	1.172
	[0.080]**	[0.239]	[0.257]	[0.123]
Vision loss	0.826	1.022	0.423	0.994
	[0.111]	[0.375]	[0.172]*	[0.234]
Other physical	0.91	0.778	0.8	0.774
	[0.049]	[0.135]	[0.141]	[0.074]**
Other mental	3.151	2.979	3.302	3.034
	[0.234]**	[0.629]**	[0.865]**	[0.390]**

Table 3.3—Continued

Variable	Pooled Responses (8,586 observations)	Cohort		
		2010, 2011, and 2012 (1,106 observations)	2010 and 2011 (919 observations)	2011 and 2012 (3,015 observations)
No injury	0.711	1.043	2.874	1.106
	[0.141]	[0.742]	[1.856]	[0.427]

NOTE: Robust standard errors are in square brackets. ** = p < 0.01. * = p < 0.05. TBI = traumatic brain injury.

all three surveys; the third set of results is the cohort that answered the first two surveys (2010–2011); and the final set of results is the cohort that answered the second two surveys but not the first (2011–2012). In all subsamples, female respondents are more likely than male respondents to have visited a professional, and these differences are statistically significant.[8] Relative to the omitted category of respondents 26 to 30 years of age, older individuals were also more likely to have visited professionals. Moreover, there is a positive relationship between the probability of visiting a professional and VA disability rating: The higher the rating, the more likely it is that the individual visited a professional, and this relationship is statistically significant for the pooled set of responses and the 2011–2012 cohort.

Table 3.3 shows that those with severe physical conditions, such as amputations and burns, were less likely to visit professionals. However, respondents with reported mental health conditions, such as PTSD, were more likely to have visited health care professionals.

Following the question on whether the respondent had visited a professional, such as a doctor, a psychologist, or a counselor, to get help with such issues as stress, emotional, alcohol, drug, or family problems, the survey asks a series of questions concerning which of these professionals the individual consulted. Specifically, the WWP survey asks participants the following questions:

- In the past three months, did you visit a mental health specialist, such as a psychiatrist, psychologist, social worker, or counselor, for these (stress, emotional, alcohol, drug, or family) problems? (asked only of those who responded that they had visited a professional in the past three months)
- In the past three months, have you received counseling, either individual, family, or group, for a mental health or emotional problem? (asked only of those who responded that they had visited a professional in the past three months)
- During the past 12 months, were there any times when you had difficulty getting mental health care or you put off getting care or you did not get the mental health care you thought you needed? (asked of all respondents, regardless of whether they reported having visited a professional in the past three months)
- Why was that? Did you have difficulty getting mental health care, or did you put off getting care, or did you did not get the mental health care you thought you needed because (asked only of individuals who reported having difficulty getting mental health care or putting off getting the mental health care they thought they needed)

[8] The magnitude of the female odds ratio indicates that the odds of seeing a health professional for female respondents are, on average, 1.776 to 3.446 times those of the odds of seeing a health professional for the base group (in this case, male respondents) in different groups of respondents, holding every other variable constant.

- you did not know about existing resources available within the U.S. Department of Defense (DoD) or VA?
- you did not feel comfortable with existing resources within DoD or VA?
- you felt that you would be stigmatized by your peers or family for seeking mental health treatment?
- you felt that you would be considered weak for seeking mental health treatment?
- you were concerned that your future career plans would be jeopardized by seeking treatment?
- you felt as if the treatment was not appropriate for your set of symptoms?
- you felt as if the treatment was not appropriate to your OEF or OIF experience?
- there is a lack of resources in your geographic area?
- there is a lack of nongovernment mental health providers in your region?
- you had inconsistent treatment or lapses in treatment (e.g., canceled appointments, had to switch providers)?
- there was no peer support available?

Table 3.4 summarizes the responses from these mental health care utilization questions.[9] The first two rows have as a population those who had seen professionals (including doctors, psychologists, or counselors) within the past three months to get help with such issues as stress,

Table 3.4
How Prevalent Is Mental Health Care Utilization, and Where Are the Gaps in Care?

	All Responses		
Response	**2010**	**2011**	**2012**
Visited mental health specialist[a]	94.44	93.12	93.33
	(1.11)	(0.71)	(0.44)
Received counseling[a]	79.44	81.71	81.54
	(1.70)	(1.09)	(0.69)
Among respondents who reported difficulty receiving mental health care[b]			
Did not see a professional	23.95	28.32	29.16
	(2.06)	(1.51)	(0.94)
Did see a professional	42.05	42.35	44.13
	(2.08)	(1.39)	(0.89)
Obstacle in receiving mental health care[c]			
Logistical			
Lack of resources in geographical area	19.35	20.05	20.51
	(2.14)	(1.42)	(0.88)

[9] For ease of reporting, we present only the full set of responses from each year. Those interested in cohort results may request them from the authors.

Table 3.4—Continued

Response	All Responses		
	2010	2011	2012
Lack of nongovernment mental health care providers	11.44	9.96	9.54
	(1.73)	(1.06)	(0.64)
Did not know about existing resources	9.09	9.46	7.38
	(1.56)	(1.04)	(0.57)
Institutional and cultural			
Future career plans jeopardized	24.63	29.76	28.94
	(2.34)	(1.62)	(0.99)
Considered weak	29.03	26.36	25.20
	(2.46)	(1.57)	(0.95)
Stigmatized by peers or family	22.29	23.08	22.52
	(2.26)	(1.50)	(0.91)
No peer support	12.32	12.86	12.84
	(1.78)	(1.19)	(0.73)
Benefits and preferences for treatment			
Inconsistent treatment	39.00	42.50	41.69
	(2.65)	(1.76)	(1.08)
Not comfortable with existing resources	35.19	34.30	33.45
	(2.59)	(1.69)	(1.03)
Treatment not appropriate to OEF or OIF experience	26.10	23.83	21.90
	(2.38)	(1.51)	(0.91)
Treatment not appropriate for symptoms	20.23	16.14	17.92
	(2.18)	(1.31)	(0.84)
Other	44.28	39.09	38.57
	(2.69)	(1.73)	(1.07)

NOTE: Standard errors are given in parentheses.

[a] These questions were asked only of the (roughly 55 percent of) respondents who reported that they had visited professionals (such as a doctor, psychologist, or counselor) in the previous three months to get help with such issues as stress, alcohol, drug, or family problems. See Table 3.2 for details.

[b] This question was asked of all respondents, whether or not they reported having visited health care professionals in the previous three months.

[c] This question was asked only of those respondents who indicated that, in the previous 12 months, they had had difficulty getting mental health care, put off getting care, or did not get the care they thought they needed.

emotional, drug, or family problems. In each wave of the survey, a large percentage (more than 90 percent) of individuals who reported having seen professionals reported having seen

a health professional. A smaller, but still significant, portion of the respondents received some type of counseling for mental health or emotional problems.

All survey respondents were asked whether they had difficulty accessing mental health care. Among those who saw a professional (regular or mental health provider), approximately 40 percent had difficulty getting mental health care.

The last panel in Table 3.4 describes the reasons cited for having difficulty receiving mental health care. Barriers to care are organized according to three broad categories described by Schell and Marshall (2008): (1) logistical (e.g., lack of resources in geographic area), (2) institutional and cultural (e.g., stigmatized by peers or family), and (3) beliefs and preference for treatment (e.g., treatment not appropriate to OEF or OIF experience). Within each category, items were further arranged by utilization rate.

Institutional and cultural barriers and beliefs and preferences for treatment were the most frequently cited reasons for not seeking behavior health treatment. Specifically, inconsistent or lapsed treatment, not being comfortable with existing resources, and fears of one's career being jeopardized (and "other") were the most commonly cited reasons for not obtaining mental health care.

Strategic Objective 1b: Increase the Percentage of Alumni Who Talk with Operation Enduring Freedom or Operation Iraqi Freedom Veterans as a Resource or Tool to Help Cope with Feelings of Stress or Emotional or Mental Health Concerns

Talking with an OEF or OIF veteran is one in a series of possible resources an individual may utilize. Specifically, the questionnaire asks, "Since you have been deployed, what types of resources and tools have you used to help you with feelings of stress or emotional or mental health concerns?" with the following options:[10]

- VA Medical Center
- veterans' center
- military chaplain
- DoD mental health provider
- talking with an OEF or OIF veteran
- talking with a veteran not from OEF or OIF
- non-VA counselor, psychologist, or psychiatrist
- non–mental health medical professional (e.g., doctor, nurse)
- prescription medicine
- talking with a nonmilitary family member or friend
- talking with a nonmilitary religious leader (e.g., minister, pastor)
- self-education through Internet, pamphlets, and books
- other.

Table 3.5 describes the percentage of WWP respondents who indicated that they had spoken with other OEF or OIF veterans about their feelings of stress or emotional or mental health concerns. WWP has a 2012 survey goal of 56.5 percent of alumni using other OEF or

[10] Respondents had the option of indicating that they had not had any feelings of stress or emotional or mental health concerns, but the wording changed between the two waves, and the pattern of responses suggests that there may have been some confusion about the use of this response combined with others. Therefore, we do not present the percentage of respondents who selected this choice.

Table 3.5
Do Wounded Warriors Talk with Operation Enduring Freedom or Operation Iraqi Freedom Veterans About Feelings of Stress or Emotional or Health Concerns After Deployment?

Survey	Baseline (wave 1)	2011 (wave 2)	2012 (wave 3)
Overall	58.10%	55.36%	58.91%
	(1.55)	(1.03)	(0.65)
2010, 2011, and 2012	64.49%	59.38%	68.38%
	(2.55)	(2.49)	(2.36)
2010 and 2011	63.27%	57.72%	
	(2.27)	(2.21)	
2011 and 2012		58.69%	65.04%
		(1.24)	(1.20)
Goal		54.5%	56.5%

SOURCE: Overall and cohort percentages were computed by Westat and compiled by WWP as it determined objectives and goals for its alumni. Table reproduced from materials provided by WWP.

NOTE: Standard errors are given in parentheses.

OIF veterans as a resource, and that was achieved in both the full set of responses and both cohorts that responded to the 2012 survey.

As in strategic objective 1a, we consider the possibility that subsets of the population use their OEF and OIF veteran peers as a resource to cope with stress or mental health concerns. Those results are presented in Table 3.6 and show that participants in the Marine Corps are

Table 3.6
Do Wounded Warriors Talk with Operation Enduring Freedom or Operation Iraqi Freedom Veterans About Feelings of Stress or Emotional or Health Concerns After Deployment? Logit Model

		Cohort		
Variable	Pooled Responses (8,859 observations)	2010, 2011, and 2012 (1,110 observations)	2010 and 2011 (933 observations)	2011 and 2012 (3,106 observations)
Female	0.78	0.93	0.615	0.971
	[0.067]**	[0.286]	[0.178]	[0.156]
Year (2010 omitted)				
2011	0.96	0.795	0.769	0.77
	[0.075]	[0.117]	[0.094]*	[0.049]**
2012	1.132	1.219		
	[0.082]	[0.181]		
Service (Army omitted)				
Navy or Coast Guard	0.861	1.816	1.207	1.09
	[0.092]	[0.723]	[0.393]	[0.220]

Table 3.6—Continued

Variable	Pooled Responses (8,859 observations)	Cohort: 2010, 2011, and 2012 (1,110 observations)	Cohort: 2010 and 2011 (933 observations)	Cohort: 2011 and 2012 (3,106 observations)
Marine Corps	1.192	1.451	1.244	1.496
	[0.087]*	[0.348]	[0.281]	[0.215]**
Air Force	0.864	1.161	1.426	0.968
	[0.095]	[0.384]	[0.505]	[0.205]
More than one service	1.038	1.781	1.4	1.132
	[0.104]	[0.561]	[0.436]	[0.201]
Marital status (married omitted)				
Previously married	1.057	1.096	0.991	1.205
	[0.067]	[0.220]	[0.206]	[0.141]
Never married	1.044	1.271	1.075	1.338
	[0.076]	[0.320]	[0.250]	[0.197]*
Age (26–30 omitted)				
18–25	0.621	0.273	0.508	0.508
	[0.068]**	[0.120]**	[0.215]	[0.120]**
31–35	0.936	0.764	0.692	0.951
	[0.067]	[0.188]	[0.162]	[0.129]
36–40	0.897	0.879	1.096	0.894
	[0.073]	[0.267]	[0.291]	[0.136]
41–45	0.763	0.73	0.753	0.725
	[0.067]**	[0.215]	[0.217]	[0.117]*
46–50	0.799	0.827	0.784	0.754
	[0.081]*	[0.267]	[0.254]	[0.138]
51–55	0.678	0.467	0.317	0.649
	[0.089]**	[0.171]*	[0.128]**	[0.148]
56+	0.711	0.845	0.822	0.723
	[0.122]*	[0.381]	[0.364]	[0.192]
VA rating (10 and 20 omitted)				
30 or 40	1.172	1.019	1.738	0.867
	[0.185]	[0.664]	[0.922]	[0.250]
50 or 60	1.005	1.64	1.752	0.854
	[0.153]	[1.051]	[0.880]	[0.236]

Table 3.6—Continued

Variable	Pooled Responses (8,859 observations)	Cohort		
		2010, 2011, and 2012 (1,110 observations)	2010 and 2011 (933 observations)	2011 and 2012 (3,106 observations)
70 or 80	1.142	0.915	1.421	0.851
	[0.168]	[0.560]	[0.683]	[0.224]
90 or 100	1.292	1.29	2.164	1.103
	[0.187]	[0.776]	[1.028]	[0.287]
Pending or under appeal	1.274	1.401	2.127	1.186
	[0.186]	[0.911]	[1.062]	[0.316]
No rating	1.141	1.415	1.855	0.987
	[0.168]	[0.911]	[0.942]	[0.271]
Rank (E1–E4 omitted)				
E5–E9 (NCO)	1.201	1.249	1.234	1.262
	[0.073]**	[0.269]	[0.253]	[0.142]*
Warrant officer	0.857	2.016	1.705	1.667
	[0.204]	[1.749]	[1.572]	[0.711]
O1–O3	1.408	0.933	1.07	1.431
	[0.180]**	[0.370]	[0.408]	[0.330]
O4–O6	1.431	1.614	1.159	1.863
	[0.194]**	[0.742]	[0.469]	[0.454]*
Injury type				
Amputation	0.796	0.669	0.665	0.822
	[0.080]*	[0.165]	[0.147]	[0.148]
Burn	1.369	2.117	1.362	1.415
	[0.173]*	[0.822]	[0.453]	[0.317]
PTSD	3.044	3.126	2.227	3.695
	[0.199]**	[0.718]**	[0.480]**	[0.459]**
Spinal cord	1.11	1.476	1.437	1.076
	[0.071]	[0.334]	[0.320]	[0.121]
TBI	1.297	1.152	0.91	1.42
	[0.069]**	[0.209]	[0.160]	[0.139]**
Vision loss	0.867	0.902	0.774	0.763
	[0.110]	[0.352]	[0.296]	[0.169]
Other physical	1.008	1.382	1.144	1.043
	[0.049]	[0.215]*	[0.174]	[0.093]

Table 3.6—Continued

Variable	Pooled Responses (8,859 observations)	Cohort: 2010, 2011, and 2012 (1,110 observations)	Cohort: 2010 and 2011 (933 observations)	Cohort: 2011 and 2012 (3,106 observations)
Other mental	1.103	0.929	1.327	0.985
	[0.065]	[0.171]	[0.269]	[0.103]
No injury	0.732	0.538	0.541	1.151
	[0.121]	[0.351]	[0.312]	[0.352]

NOTE: Robust standard errors are given in square brackets. ** = p < 0.01. * = p < 0.05.

more likely than Army respondents to have talked to other veterans. Those who are higher ranked also seem more likely to have talked to other veterans, but this difference is not statistically significant for all samples. Finally, those who report having PTSD or TBI are substantially more likely to have talked to other veterans about feelings of stress or emotional or health concerns than those who do not report these injuries.

Next, we explore what other resources alumni are using to cope with emotional and mental health concerns. We examine this separately for alumni who did and did not talk with other OIF or OEF veterans. WWP provides programs aimed at helping wounded warriors, so we also examine the percentage of alumni who utilized the following WWP program resources that are designed to support the wounded warrior's mind and encourage engagement:

- peer mentoring
- Project Odyssey
- WWP Connect.[11]

Table 3.7 presents utilization rates for the full sets of responses.[12] These results show that wounded warriors who report not having talked with OEF or OIF veterans make use of other resources to cope with feelings of stress or emotional or mental health concerns. The most commonly used resource is the VA Medical Center, and a large fraction of alumni are also taking prescription medication. On average, respondents reported making use of one or two resources other than talking with OEF and OIF veterans. Among WWP programs, 2011 showed nearly a doubling of the percentage of respondents who are enrolled in WWP Connect, but that rate dropped nearly to 2010 levels in 2012.

Among respondents who reported talking with OEF or OIF veterans about their feelings of stress or emotional or mental health concerns, we observe similar patterns to those described above, in which the VA Medical Center and prescription medication are the two most commonly used resources. The one difference in the patterns, compared with respondents who

[11] According to the WWP website (WWP, undated), the peer mentoring program motivates warriors by helping them develop one-on-one friendships with fellow warriors who are further along in the recovery process. Project Odyssey helps warriors overcome combat stress through outdoor, rehabilitative retreats that encourage a connection with nature, peers, Project Odyssey staff, and trained counselors. WWP Connect is a private online social network created for alumni, caregivers, and WWP staff.

[12] For ease of reporting, we present only the full set of responses from each year. Those interested in cohort results may request them from the authors.

Table 3.7
What Resources Did Wounded Warrior Project Respondents Use to Help with Feelings of Stress or Emotional or Mental Health Concerns? (%)

	Did Not Talk with OEF or OIF Veteran			Talked with OEF or OIF Veteran		
Characteristic	**2010**	**2011**	**2012**	**2010**	**2011**	**2012**
Non-WWP programs						
VA Medical Center	44.50	41.38	43.65	72.14	66.56	64.36
	(2.41)	(1.53)	(1.03)	(1.86)	(1.32)	(0.83)
Prescription medicine	28.81	29.85	31.98	64.33	61.58	59.56
	(2.19)	(1.43)	(0.96)	(1.98)	(1.36)	(0.85)
Talk with nonmilitary family member or friend	12.41	14.83	18.04	43.86	40.23	38.68
	(1.60)	(1.11)	(0.80)	(2.05)	(1.37)	(0.84)
Non-VA counselor, psychologist, or psychiatrist	8.90	11.53	15.05	28.72	26.88	28.36
	(1.38)	(9.95)	(7.40)	(1.87)	(1.24)	(0.79)
Self-education	7.96	12.50	14.96	32.31	34.77	34.89
	(1.31)	(1.03)	(0.74)	(1.94)	(1.33)	(0.82)
Vet center	16.16	11.82	13.47	27.74	27.89	27.77
	(1.78)	(1.01)	(0.71)	(1.85)	(1.25)	(0.77)
DoD mental health provider	10.77	10.27	12.74	30.65	25.55	27.53
	(1.50)	(0.95)	(0.69)	(1.91)	(1.22)	(0.77)
Military chaplain	5.39	7.66	9.23	23.59	22.34	23.23
	(1.09)	(0.83)	(0.60)	(1.76)	(1.16)	(0.73)
Talking with veteran not from OEF or OIF	7.26	8.04	6.84	49.57	44.69	46.08
	(1.26)	(0.85)	(0.52)	(2.07)	(1.39)	(0.86)
Talk with nonmilitary religious leader	3.04	5.81	5.86	16.44	15.16	13.78
	(0.83)	(0.73)	(0.49)	(1.53)	(1.00)	(0.60)
Non–mental health professional	4.45	4.36	4.79	18.35	14.92	15.93
	(1.00)	(0.64)	(0.44)	(1.60)	(1.00)	0.63)
Other	6.79	9.79	5.17	7.12	7.97	6.50
	(1.22)	(0.93)	(0.46)	(1.06)	(0.76)	(0.43)
No mental health concerns	19.59	16.28	19.84	1.19	0.70	0.62
	(1.72)	(1.15)	(0.82)	(0.45)	(0.23)	(0.14)
Average number of non-WWP resources used	1.50	1.68	1.82	5.04	4.88	4.87
	(0.08)	(0.05)	(0.03)	(0.09)	(0.06)	(0.04)

Table 3.7—Continued

Characteristic	Did Not Talk with OEF or OIF Veteran			Talked with OEF or OIF Veteran		
	2010	2011	2012	2010	2011	2012
WWP programs						
Peer mentoring	6.79	3.97	3.81	8.81	7.66	7.37
	(1.22)	(0.61)	(0.40)	(1.17)	(0.74)	(0.45)
Project Odyssey	2.81	2.03	2.74	4.58	4.61	6.17
	(0.80)	(0.44)	(0.34)	(0.09)	(0.59)	(0.42)
WWP Connect	8.67	16.38	10.43	16.44	26.17	18.91
	(1.36)	(1.15)	(0.63)	(1.53)	(1.23)	(0.68)

NOTE: Standard errors are in parentheses.

reported not talking with OEF or OIF veterans, is that those who do are also much more likely to talk with non–OEF and OIF veterans. We note also that the rate of utilization of other resources is considerably higher among those respondents who reported talking with OEF and OIF veterans. Therefore, there appears to be a group of individuals who make use of resources at a high rate, including talking to their OEF and OIF veteran peers, and another group that simply utilizes resources (at least those options presented in the survey) less.

Strategic Objective 1d: Decrease the Percentage of Alumni Whose Emotional Problems Interfere with Work or Regular Activities

The survey question from which strategic objective 1d and WWP's corresponding goal are derived reads, "During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?" Respondents were able to respond "yes" or "no" to any of the following choices:

- cut down the amount of time you spent on work or other activities (yes = 0, no = 100)
- accomplished less than you would like (yes = 0, no = 100)
- did not do work or other activities as carefully as usual (yes = 0, no = 100).

To track this strategic objective, WWP uses only the percentage for the first option, those respondents whose emotional problems forced them to cut down the amount of time that they spend on work or other activities. Results for the full set of survey responses are presented in Table 3.8.

WWP's goal of 56 percent for 2011 was only narrowly missed. However, the gap between the realized percentage and WWP's goal is larger in 2012 than it was in 2011.

The survey question that is used in this strategic objective derives from questions 17–19 in the Veterans RAND 36-Item Health Survey (VR-36) used to evaluate physical and mental health components, such as physical functioning, bodily pain, general health, and vitality. Each of the three options in the WWP survey question corresponds to one item on the VR-36. Individuals who answer "yes" receive a score of 0, and those who answer "no" receive 100. In other words, those with a higher score experience less of these negative effects and therefore

Table 3.8
Do Emotional Problems Interfere with Wounded Warriors' Work or Regular Activities?

Survey	Baseline (wave 1)	2011 (wave 2)	2012 (wave 3)
Overall	58.17%	59.28%	59.85%
	(1.52)	(1.04)	(0.65)
2010, 2011, and 2012	61.32%	58.05%	61.50%
	(2.50)	(2.54)	(2.48)
2010 and 2011	60.88%	57.38%	
	(2.23)	(2.25)	
2011 and 2012		60.01%	62.24%
		(1.25)	(1.23)
Goal		56%	54%

SOURCE: Overall and cohort percentages were computed by Westat and compiled by WWP as it determined objectives and goals for its alumni. Table reproduced from materials provided by WWP.

NOTE: Standard errors are given in parentheses.

have more-favorable health outcomes than those with lower scores. The three question options are then averaged to form scales, and the aggregate score is considered a measure of the emotional role in the mental health component, called *Role–Emotional*.

The aggregated scores are then normed by giving each a mean of 50 and standard deviation of 10. To accomplish this, the z-score is calculated by subtracting the population mean[13] from each component scale and dividing the result by the population standard deviation. The z-score is then multiplied by 10, and 50 is added to this result to get the norm-based score (see Ware, 1994). If the sample population received a norm-based score of 40 for a given component, this indicates that the sample population scored one standard deviation, or ten points, below the population as a whole, indicating greater emotional distress. The transformation of the raw sample scores allows for comparisons to the population at large. To test the sensitivity of our regression results to the population mean and standard deviation used to calculate the z-score, we repeated the regression analysis with population mean and standard deviations for age groups 25–34, 35–44, and 45–54 from the Canadian male and general populations (Hopman et al., 2000). The results showed little sensitivity to the means and standard deviations used for these age groups.

The Role–Emotional component scale is among the most valid scales for evaluating mental health in individuals by measuring the impact that emotional well-being has on daily functions, such as work and other activities. Individuals scoring lower on the Role–Emotional scales benefit from treatments based on improving mental health, such as drug treatment and interpersonal therapy for depression, showing responsiveness to treatment in before and after survey comparisons (Ware, 2004).

[13] We have taken the mean and standard deviation for the U.S. population from Ware, 2000.

Table 3.9
Do Emotional Problems Interfere with Wounded Warriors' Work or Regular Activities? Ordinary Least Squares Model

		Cohort		
Variable	**Pooled Responses (8,690 observations)**	**2010, 2011, and 2012 (1,112 observations)**	**2010 and 2011 (931 observations)**	**2011 and 2012 (3,031 observations)**
Female	–2.366	–4.759	–3.439	–3.013
	[0.439]**	[1.886]*	[1.652]*	[0.806]**
Year (2010 omitted)				
2011	0.556	2.156	2.244	0.401
	[0.419]	[0.715]**	[0.634]**	[0.340]
2012	0.179	1.664		
	[0.389]	[0.695]*		
Service (Army omitted)				
Navy or Coast Guard	–0.13	–0.179	–1.195	–0.301
	[0.578]	[2.219]	[1.998]	[1.020]
Marine Corps	–0.507	–0.418	–1.165	–1.213
	[0.414]	[1.363]	[1.285]	[0.776]
Air Force	–0.727	3.047	2.275	1.122
	[0.597]	[1.839]	[2.085]	[1.115]
More than one service	–0.355	3.005	1.385	–0.475
	[0.585]	[1.616]	[1.826]	[1.052]
Marital status (married omitted)				
Previously married	–1.156	–1.528	–0.151	–1.457
	[0.342]**	[1.269]	[1.246]	[0.618]*
Never married	0.837	0.664	1.112	0.446
	[0.410]*	[1.493]	[1.388]	[0.772]
Age (26–30 omitted)				
18–25	1.338	2.312	3.702	2.484
	[0.663]*	[3.075]	[2.638]	[1.452]
31–35	–1.337	–1.525	–0.853	–2.096
	[0.395]**	[1.378]	[1.432]	[0.720]**
36–40	–2.699	–2.632	–3.337	–3.165
	[0.452]**	[1.634]	[1.477]*	[0.827]**
41–45	–2.637	–2.759	–2.983	–2.493
	[0.489]**	[1.625]	[1.606]	[0.907]**

Table 3.9—Continued

Variable	Pooled Responses (8,690 observations)	Cohort		
		2010, 2011, and 2012 (1,112 observations)	2010 and 2011 (931 observations)	2011 and 2012 (3,031 observations)
46–50	–3.264	–8.107	–7.254	–4.555
	[0.540]**	[1.682]**	[1.720]**	[0.949]**
51–55	–3.535	–9.991	–6.734	–5.597
	[0.715]**	[2.368]**	[2.525]**	[1.119]**
56+	–3.868	–8.693	–9.085	–4.151
	[0.992]**	[2.582]**	[2.229]**	[1.522]**
VA rating (10 and 20 omitted)				
30 or 40	–1.742	1.839	0.998	–0.756
	[0.913]	[4.207]	[3.042]	[1.571]
50 or 60	–3.361	–1.031	–3.085	–2.838
	[0.882]**	[3.756]	[2.863]	[1.490]
70 or 80	–4.213	–1.658	–3.76	–3.18
	[0.846]**	[3.645]	[2.644]	[1.430]*
90 or 100	–5.048	–1.895	–3.537	–4.35
	[0.834]**	[3.606]	[2.593]	[1.398]**
Pending or under appeal	–3.635	–1.703	–3.826	–2.435
	[0.836]**	[3.802]	[2.727]	[1.431]
No rating	–0.593	1.932	1.516	–0.271
	[0.842]	[3.798]	[2.822]	[1.466]
Rank (E1–E4 omitted)				
E5–E9 (NCO)	0.857	3.744	3.275	1.246
	[0.350]*	[1.276]**	[1.209]**	[0.636]
Warrant officer	2.221	16.325	17.541	3.073
	[1.209]	[3.219]**	[2.718]**	[2.296]
O1–O3	1.559	2.356	2.271	1.585
	[0.660]*	[2.438]	[2.363]	[1.104]
O4–O6	1.407	6.624	5.943	1.486
	[0.766]	[2.636]*	[2.352]*	[1.259]
Injury type				
Amputation	4.121	2.663	1.952	3.759
	[0.602]**	[1.652]	[1.556]	[1.067]**

Table 3.9—Continued

Variable	Pooled Responses (8,690 observations)	Cohort: 2010, 2011, and 2012 (1,112 observations)	Cohort: 2010 and 2011 (931 observations)	Cohort: 2011 and 2012 (3,031 observations)
Burn	2.526	2.238	3.976	1.677
	[0.742]**	[2.107]	[1.883]*	[1.374]
PTSD	–10.181	–9.624	–9.651	–9.45
	[0.386]**	[1.347]**	[1.301]**	[0.742]**
Spinal cord	–1.629	–1.144	–0.83	–1.582
	[0.342]**	[1.153]	[1.124]	[0.592]**
TBI	–1.482	–2.595	–1.584	–1.727
	[0.303]**	[1.056]*	[1.015]	[0.552]**
Vision loss	1.251	–1.277	–0.712	1.381
	[0.729]	[2.186]	[2.383]	[1.260]
Other physical	0.277	0.992	0.86	–0.317
	[0.275]	[0.873]	[0.913]	[0.485]
Other mental	–5.192	–5.216	–4.261	–5.497
	[0.304]**	[0.929]**	[0.997]**	[0.525]**
No injury	2.417	–4.15	–5.753	1.992
	[0.781]**	[3.534]	[3.691]	[1.535]
Constant	50.803	45.891	46.78	50.697
	[0.968]**	[3.908]**	[2.997]**	[1.557]**

NOTE: Robust standard errors are given in square brackets. ** = $p < 0.01$. * = $p < 0.05$.

Because the norm-based score on the Role–Emotional component is a well-known measure in the literature, we first present regression results in Table 3.9 showing the relationship between individual and service experiences and the probability of reporting a negative impact of emotional well-being on work and other activities. Table A.1 in the appendix describes regression results for WWP's metric focusing on only the first response in the question.

The results suggest that female respondents are more likely than male respondents to report a negative impact of emotional well-being on work or other activities (i.e., they have a lower Role–Emotional component than males). In addition, those who are currently married experience less interference in work and other activities from their emotional health than those previously married. Age is also related to Role–Emotional scores: Older respondents have lower scores (i.e., more likely to report that their daily activities are negatively affected by their emotional well-being) than younger ones. Some specifications show a similar relationship for VA disability rating: The higher the rating, the lower the Role–Emotional score. Although some injuries, such as PTSD, spinal cord, TBI, and other mental injuries, are associated with *lower* scores (more interference with daily activities), other injuries, such as amputation and burns, are associated with *higher* scores (daily activities less likely to be negatively affected by

emotional well-being). The results for WWP's measure, as presented in Table A.1 in the appendix, are consistent with the Role–Emotional outcomes.

Strategic Objective 1e: Decrease the Percentage of Alumni Whose Military Experiences Were So Frightening, Horrible, or Upsetting That They Have Not Been Able to Escape from Memories or Effects of Them

The results for this objective are derived from a survey question that reads, "In your military experience, have you ever had an experience that was so frightening, horrible, or upsetting that in the past month," with the following options:

- you have had nightmares about it
- you have thought about it when you did not want to
- you tried hard not to think about it or went out of your way to avoid situations that reminded you of it
- you were constantly on guard, watchful, or easily startled
- you felt numb or detached from others, activities, or your surroundings.

The percentages used to track WWP's strategic objectives focus on only the second response option, which deals with the individual thinking about an experience when he or she did not want to. Table 3.10 shows the results.

This survey question was developed in accordance with the Primary Care PTSD Screen (PC-PTSD) (see Prins et al., 2003), on which individuals who report experiencing three of the conditions are considered to have screened positive for PTSD and should be tested further for the presence of PTSD.[14] The original screener is a four-item question that combines the first two options in the WWP survey item:

> In your life [military experience], have you ever had an experience that was so frightening, horrible, or upsetting that, in the past month, you
>
> - have had nightmares about it or thought about it when you did not want to?
> - tried hard not to think about it or went out of your way to avoid situations that reminded you of it?
> - were constantly on guard, watchful, or easily startled?
> - felt numb or detached from others, activities, or your surroundings?

For this strategic objective, we consider whether two metrics vary across demographic groups. First, we analyze the PC-PTSD, on which individuals who have three or four "yes" responses are considered to have screened positive for PTSD. Then, we consider WWP's stated objective, which splits the first PC-PTSD option into two and focuses only on thinking about a military experience when the respondent did not want to.

[14] Military studies of PTSD screeners use a cutoff of either two or three "yes" responses. As described in Bliese et al. (2008) and Stoll et al. (1999), low cutoff points result in a high sensitivity but a low specificity (e.g., many false positive results), and a high cutoff point leads to many false negative results (e.g., missing many positive cases). It is recommended that, when base rates are high or treatment is expensive, the metric should favor specificity (Prins et al., 2003). With rates near 80 percent in one question alone (see Table 3.10), we make use of the three-response cutoff, thereby reducing the false positives but possibly underestimating the percentage of respondents who screen positive for PTSD.

Table 3.10
Do Wounded Warriors Think About Frightening, Horrible, or Upsetting Deployment Experiences?

Survey	Baseline (wave 1)	2011 (wave 2)	2012 (wave 3)
Overall	76.55%	77.79%	76.13%
	(1.34)	(0.89)	(0.57)
2010, 2011, and 2012	79.13%	79.47%	78.39%
	(2.12)	(2.09)	(2.10)
2010 and 2011	78.74%	79.04%	
	(1.91)	(1.86)	
2011 and 2012		78.84%	78.11%
		(1.05)	(1.05)
Goal		76%	75.5%

SOURCE: Overall and cohort percentages were computed by Westat and compiled by WWP as it determined objectives and goals for its alumni. Table reproduced from materials provided by WWP.

NOTE: Standard errors are given in parentheses.

Table 3.11
Which Wounded Warriors Screen Positive for Posttraumatic Stress Disorder? Logit Model

		Cohort		
Variable	Pooled Responses (8,960 observations)	2010, 2011, and 2012 (1,146 observations)	2010 and 2011 (979 observations)	2011 and 2012 (3,106 observations)
Female	0.829	1.266	1.065	0.809
	[0.085]	[0.651]	[0.463]	[0.153]
Year (2010 omitted)				
2011	1.339	1.044	1.016	1.037
	[0.120]**	[0.159]	[0.135]	[0.081]
2012	1.422	1.059		
	[0.118]**	[0.178]		
Service (Army omitted)				
Navy or Coast Guard	0.948	2.612	1.689	0.855
	[0.124]	[1.718]	[0.952]	[0.208]
Marine Corps	1.012	1.035	1.341	1.072
	[0.093]	[0.342]	[0.404]	[0.187]

Table 3.11—Continued

Variable	Pooled Responses (8,960 observations)	Cohort		
		2010, 2011, and 2012 (1,146 observations)	2010 and 2011 (979 observations)	2011 and 2012 (3,106 observations)
Air Force	0.769	0.591	0.523	0.606
	[0.097]*	[0.260]	[0.229]	[0.148]*
More than one service	0.994	0.799	0.729	1.021
	[0.126]	[0.311]	[0.233]	[0.245]
Marital status (married omitted)				
Previously married	1.237	1.084	1.191	1.403
	[0.101]**	[0.334]	[0.338]	[0.224]*
Never married	0.889	1	0.704	1.058
	[0.079]	[0.335]	[0.203]	[0.189]
Age (26–30 omitted)				
18–25	0.8	0.593	0.478	0.868
	[0.107]	[0.271]	[0.213]	[0.273]
31–35	1.186	1.744	1.525	1.468
	[0.101]*	[0.512]	[0.439]	[0.235]*
36–40	1.432	2.27	1.919	1.938
	[0.143]**	[0.754]*	[0.581]*	[0.363]**
41–45	1.273	2.277	2.559	1.647
	[0.135]*	[0.849]*	[0.910]**	[0.328]*
46–50	1.27	2.231	2.423	1.695
	[0.158]	[0.989]	[0.975]*	[0.389]*
51–55	1.131	3.609	1.569	1.924
	[0.182]	[2.620]	[0.950]	[0.523]*
56+	1.415	1.475	1.975	2.108
	[0.338]	[0.987]	[1.068]	[0.780]*
VA rating (10 and 20 omitted)				
30 or 40	1.268	1.946	1.932	1.475
	[0.241]	[1.395]	[1.169]	[0.505]
50 or 60	1.452	3.748	2.893	1.79
	[0.266]*	[2.763]	[1.776]	[0.559]
70 or 80	1.625	3.669	3.698	1.597
	[0.287]**	[2.573]	[2.047]*	[0.486]

Table 3.11—Continued

Variable	Pooled Responses (8,960 observations)	Cohort: 2010, 2011, and 2012 (1,146 observations)	Cohort: 2010 and 2011 (979 observations)	Cohort: 2011 and 2012 (3,106 observations)
90 or 100	1.615	2.164	2.052	1.556
	[0.281]**	[1.482]	[1.087]	[0.468]
Pending or under appeal	1.203	2.283	2.193	1.057
	[0.209]	[1.767]	[1.314]	[0.321]
No rating	0.906	1.035	1.035	1.072
	[0.158]	[0.763]	[0.593]	[0.329]
Rank (E1–E4 omitted)				
E5–E9 (NCO)	0.883	0.531	0.525	0.71
	[0.067]	[0.152]*	[0.136]*	[0.103]*
Warrant officer	0.552	0.304	0.527	0.394
	[0.128]*	[0.216]	[0.435]	[0.141]**
O1–O3	0.794	0.388	0.565	0.632
	[0.120]	[0.187]	[0.266]	[0.186]
O4–O6	0.653	0.738	0.488	0.58
	[0.101]**	[0.420]	[0.253]	[0.154]*
Injury type				
Amputation	0.4	0.511	0.517	0.43
	[0.046]**	[0.162]*	[0.146]*	[0.093]**
Burn	0.818	1.023	0.714	1.125
	[0.132]	[0.532]	[0.281]	[0.366]
PTSD	10.882	11.405	9.702	11.063
	[0.808]**	[3.053]**	[2.386]**	[1.544]**
Spinal cord	1.354	1.285	0.896	1.228
	[0.114]**	[0.378]	[0.239]	[0.177]
TBI	1.563	1.435	1.151	1.936
	[0.100]**	[0.320]	[0.235]	[0.232]**
Vision loss	0.795	0.534	0.611	0.574
	[0.131]	[0.251]	[0.271]	[0.166]
Other physical	0.933	0.902	0.867	0.968
	[0.057]	[0.183]	[0.170]	[0.107]
Other mental	2.031	2.298	3.013	2.361
	[0.167]**	[0.619]**	[0.916]**	[0.362]**

Table 3.11—Continued

Variable	Pooled Responses (8,960 observations)	Cohort		
		2010, 2011, and 2012 (1,146 observations)	2010 and 2011 (979 observations)	2011 and 2012 (3,106 observations)
No injury	0.581	0.252	0.242	0.86
	[0.124]*	[0.255]	[0.191]	[0.341]

NOTE: Robust standard errors are given in square brackets. ** = p < 0.01. * = p < 0.05.

Table 3.11 shows regression results of an analysis of the effect of individual and service characteristics on the probability of screening positive for PTSD.[15] For the pooled responses (column 1), this probability is higher in both 2011 and 2012 than it was in 2010. Moreover, it tends to be higher for those previously married than for those currently married. Those with higher VA disability ratings, relative to those with 10- or 20-percent ratings, also tend to have a higher probability of screening positive (the results are not always statistically significant, though). Finally, some injuries, such as PTSD and TBI, increase the probability of screening positive. The probability of screening positive is higher among junior enlisted (E1–E4) than it is among NCOs (E5–E9), though only among the cohort specifications. Junior enlisted personnel also have a higher probability than warrant officers of screening positive for PTSD.

Table A.2 in the appendix presents similar results for those who indicate having difficulty escaping the memories or effects of a frightening, horrible, or upsetting deployment experience, WWP's strategic objective 1e. Except for the first column showing pooled responses, there were no gender differences in the percentage of respondents who reported thinking about bad experiences more often than they would like. There were also no time trends in this outcome. Higher VA disability rating was related to a higher probability of an upsetting deployment experience relative to having no injury, as were PTSD, TBI, and other mental illnesses.

Strategic Objective 1g: Increase the Percentage of Alumni Who Can Adapt When Change Occurs or Bounce Back After Illness, Injury, or Hardship (Resilience)

WWP's survey contains two items pertaining to adaptability and the ability to bounce back:

- Adaptability: I am able to adapt when changes occur.
- Bounce back: I tend to bounce back after illness, injury, or other hardships.

In both items, respondents are offered the following choices: not at all, rarely true, sometimes true, often true, or nearly all of the time. The goal measures those who answer that they are able to adapt or bounce back often or nearly all of the time.

As will be discussed in more detail below, WWP's reporting of this outcome is shown in Table 3.12 but measures only the adaptability question (in other words, the percentage of respondents who adapt often or nearly all of the time when changes occur). Our analysis for

[15] We have also performed this analysis without controls for injury type, and the results are robust to the original specification reported in Table 3.11. The other option would be to exclude alumni who report experiencing PTSD, but PTSD is often comorbid with other conditions, and we would lose that information. Results of alternative specifications are available from the authors upon request.

Table 3.12
Can Wounded Warriors Adapt to Change?

Survey	Baseline (wave 1)	2011 (wave 2)	2012 (wave 3)
Overall	55.89%	53.80%	55.26%
	(1.60)	(1.07)	(0.67)
2010, 2011, and 2012	54.27%	57.33%	54.57%
	(2.62)	(2.56)	(2.55)
2010 and 2011	54.65%	56.87%	
	(2.34)	(2.28)	
2011 and 2012		53.51%	53.37%
		(1.28)	(1.27)
Goal		57%	58%

SOURCE: Overall and cohort percentages were computed by Westat and compiled by WWP as it determined objectives and goals for its alumni. Table reproduced from materials provided by WWP.

NOTE: Standard errors are given in parentheses.

this goal first introduces a metric from the literature that makes use of these two questions, and it then expands the measure to include the bounce-back question the way WWP's goal reads.

The adaptability and bounce-back questions make up a resilience scale often used in the literature, the two-item Connor-Davidson Resilience Scale (CD-RISC 2) (Vaishnavi, Connor, and Davidson, 2007). Scoring for the CD-RISC 2 is as follows:

- not at all = 0
- rarely true = 1
- sometimes true = 2
- often true = 3
- nearly all of the time = 4.

The two questions are scored separately and then summed together, for a total ranging from zero to eight. CD-RISC 2 scores are found to be 6.91 in the general population, 5.12 in the population of patients exhibiting symptoms of depression, and 4.7 among patients with PTSD (see Vaishnavi, Connor, and Davidson, 2007).

WWP's stated goal includes both the adaptability and bounce-back questions, but the numbers highlighted in Table 3.12 include only the former. Therefore, in addition to analyzing the CD-RISC 2 measure, we recalculate WWP's stated goal to include both questions. We create a 0/1 indicator variable that takes on a value of 1 if the respondent indicates that he or she can adapt or bounce back often or nearly all of the time, or 0 otherwise.

We note that both metrics (CD-RISC 2 and WWP's 0/1 indicator) take into account both questions, so we might expect the results to be similar. The difference between the two is that the CD-RISC 2 more granularly measures the variation in each outcome, applying more weight to those responses that indicate that the individual more frequently adapts or bounces back.

Table 3.13
Are Wounded Warriors Resilient? Two-Item Connor-Davidson Resilience Scale, Ordinary Least Squares Model

		Cohort		
Variable	Pooled Responses (8,423 observations)	2010, 2011, and 2012 (1,100 observations)	2010 and 2011 (906 observations)	2011 and 2012 (3,001 observations)
Female	–0.378	–0.563	–0.661	–0.355
	[0.077]**	[0.322]	[0.252]**	[0.145]*
Year (2010 omitted)				
2011	–0.007	0.165	0.181	–0.03
	[0.064]	[0.091]	[0.086]*	[0.045]
2012	0.051	0.14		
	[0.059]	[0.093]		
Service (Army omitted)				
Navy or Coast Guard	–0.122	–0.086	–0.595	–0.108
	[0.092]	[0.321]	[0.355]	[0.165]
Marine Corps	0.228	0.355	0.161	0.226
	[0.063]**	[0.205]	[0.187]	[0.117]
Air Force	–0.14	–0.153	–0.383	–0.039
	[0.097]	[0.313]	[0.306]	[0.175]
More than one service	–0.054	0.264	0.142	–0.158
	[0.090]	[0.238]	[0.243]	[0.150]
Marital status (married omitted)				
Previously married	0.047	–0.01	–0.13	0.038
	[0.057]	[0.208]	[0.182]	[0.107]
Never married	0.293	0.135	0.219	0.208
	[0.061]**	[0.202]	[0.190]	[0.117]
Age (26–30 omitted)				
18–25	0.055	0.512	0.395	–0.009
	[0.095]	[0.331]	[0.323]	[0.202]
31–35	–0.201	–0.228	–0.217	–0.356
	[0.059]**	[0.198]	[0.197]	[0.108]**
36–40	–0.371	–0.786	–0.767	–0.545
	[0.071]**	[0.266]**	[0.241]**	[0.128]**
41–45	–0.339	–0.41	–0.272	–0.547
	[0.074]**	[0.246]	[0.229]	[0.135]**

Table 3.13—Continued

Variable	Pooled Responses (8,423 observations)	Cohort		
		2010, 2011, and 2012 (1,100 observations)	2010 and 2011 (906 observations)	2011 and 2012 (3,001 observations)
46–50	–0.363	–0.693	–0.631	–0.425
	[0.090]**	[0.309]*	[0.292]*	[0.159]**
51–55	–0.434	–1.013	–1.02	–0.768
	[0.122]**	[0.415]*	[0.415]*	[0.198]**
56+	–0.224	–0.957	–1.066	–0.352
	[0.149]	[0.410]*	[0.369]**	[0.224]
VA rating (10 and 20 omitted)				
30 or 40	–0.121	0.097	–0.089	–0.099
	[0.120]	[0.334]	[0.371]	[0.201]
50 or 60	–0.321	–0.659	–0.806	–0.213
	[0.118]**	[0.335]*	[0.376]*	[0.190]
70 or 80	–0.402	–0.527	–0.636	–0.271
	[0.114]**	[0.313]	[0.358]	[0.182]
90 or 100	–0.599	–0.694	–0.706	–0.474
	[0.112]**	[0.312]*	[0.350]*	[0.178]**
Pending or under appeal	–0.434	–0.784	–0.949	–0.506
	[0.111]**	[0.334]*	[0.384]*	[0.180]**
No rating	0.019	–0.368	–0.247	–0.027
	[0.111]	[0.335]	[0.367]	[0.190]
Rank (E1–E4 omitted)				
E5–E9 (NCO)	0.206	0.398	0.286	0.274
	[0.052]**	[0.184]*	[0.168]	[0.094]**
Warrant officer	0.621	1.954	1.809	0.804
	[0.210]**	[0.514]**	[0.622]**	[0.390]*
O1–O3	0.718	0.762	0.617	0.718
	[0.105]**	[0.359]*	[0.299]*	[0.187]**
O4–O6	0.46	0.869	0.926	0.299
	[0.118]**	[0.377]*	[0.365]*	[0.212]
Injury type				
Amputation	0.847	0.75	0.881	0.758
	[0.082]**	[0.227]**	[0.205]**	[0.146]**

Table 3.13—Continued

Variable	Pooled Responses (8,423 observations)	Cohort		
		2010, 2011, and 2012 (1,100 observations)	2010 and 2011 (906 observations)	2011 and 2012 (3,001 observations)
Burn	0.339	0.127	0.259	0.467
	[0.109]**	[0.309]	[0.268]	[0.184]*
PTSD	–1.082	–1.115	–1.017	–1.014
	[0.054]**	[0.185]**	[0.169]**	[0.099]**
Spinal cord	–0.167	–0.316	–0.198	–0.284
	[0.056]**	[0.184]	[0.173]	[0.094]**
TBI	–0.206	–0.406	–0.378	–0.229
	[0.046]**	[0.154]**	[0.138]**	[0.083]**
Vision loss	0.167	0.033	0.12	0.016
	[0.115]	[0.328]	[0.303]	[0.196]
Other physical	0.071	0.115	0.064	0.067
	[0.043]	[0.130]	[0.128]	[0.074]
Other mental	–0.8	–0.613	–0.829	–0.88
	[0.055]**	[0.186]**	[0.189]**	[0.094]**
No injury	0.183	0.155	–0.066	0.066
	[0.118]	[0.454]	[0.453]	[0.246]
Constant	6.552	6.77	6.901	6.627
	[0.133]**	[0.376]**	[0.394]**	[0.205]**

NOTE: Robust standard errors are given in square brackets. ** = $p < 0.01$. * = $p < 0.05$.

In Table 3.13, we present regression results showing the relationship between individual and service characteristics and the extent to which respondents are able to adapt when change occurs or bounce back after illness, injury, or hardship. Relative to their respective omitted categories (e.g., females relative to males), resilience scores are lower for females, older respondents, and respondents with higher VA disability ratings, PTSD, spinal-cord injuries, TBI, and other mental health conditions. Moreover, alumni in the Marine Corps have higher resilience scores than Army respondents, as do respondents who achieved higher ranks while serving. Finally, never-married respondents are more resilient than those who are currently married. These patterns are consistent with results for WWP's 0/1 metric, as shown in Table A.3 in the appendix, except for the effects of being in the Marine Corps or serving as a warrant officer, which does not have a significant effect on adapting when WWP's 0/1 metric is used.

Depression Risk Questionnaire

WWP has identified key survey questions that it intends to follow and study over the course of the five-wave survey effort to characterize, describe, and monitor the mental health of its alumni. In addition to the five that we have analyzed in this report, we now turn to the eight-

item Patient Health Questionnaire (PHQ-8) (Kroenke, Strine, et al., 2009), a scale that is used in the health literature to identify individuals who are suffering from major depressive disorder (MDD).

The WWP survey asks respondents, "In the past two weeks, how often have you been bothered by any of the following problems?" with the following possible answers:

- little interest or pleasure in doing things
- feeling down, depressed, or hopeless
- trouble falling asleep or staying asleep, or sleeping too much
- feeling tired or having little energy
- poor appetite or overeating
- feeling bad about yourself, or that you are a failure or you have let yourself or your family down
- trouble concentrating on things, such as reading the newspaper or watching television
- moving or speaking so slowly that other people could have noticed, or the opposite—being so fidgety or restless that you have been moving around a lot more than usual.

Respondents are provided with four options:

- not at all
- several days
- more than half the days
- nearly every day.

Each of the eight questions is scored from 0 (not at all) to 3 (nearly every day), and the eight scores are summed to create an overall scale that ranges from 0 to 24. Scores are characterized as follows:

- 0–4: no significant depressive symptoms
- 5–9: mild depression
- 10–14: moderate depression
- 15–19: moderately severe depression
- 20–24: severe depression.

To frame the analysis for the PHQ-8, we first present the distribution of depression levels, as shown in Table 3.14.

Table 3.14
Do Wounded Warriors Experience Depressive Symptoms?

Symptom Level	2010	2011	2012
No significant depressive symptoms	28.19	22.15	17.78
Mild depression	17.22	18.56	20.99
Moderate depression	21.05	21.32	23.21
Moderately severe depression	16.95	19.33	20.85
Severe depression	16.59	18.64	17.16

Across all three survey years, the range of depressive symptoms is quite evenly distributed, with approximately 60 percent of alumni screening positive for probable depression, measured as those who experience moderate, moderately severe, or severe depressive symptoms.

For this analysis, wherein we again consider whether differences exist across subgroups of the population, we follow the convention of Kroenke, Spitzer, and Williams (2001) and use a cutoff score of 10 to indicate probable depression.

Table 3.15 shows the regression results for the probability of screening positive for probable depression. The results show that this probability is strongly correlated with age: The older the respondent, the higher the probability that he or she will screen positive for depression.

Respondents who answered all three surveys (2010, 2011, and 2012) were less likely in 2012 than 2010 to screen positive for probable depression. Similarly, 2010–2011 respondents were less likely in 2011 than 2010 to screen positive. Relative to junior enlisted (the omitted

Table 3.15
Do Wounded Warriors Screen Positive for Probable Depression? Logit Model

		Cohort		
Variable	**Pooled Responses (8,649 observations)**	**2010, 2011, and 2012 (1,116 observations)**	**2010 and 2011 (926 observations)**	**2011 and 2012 (3,032 observations)**
Female	1.357	1.427	1.302	1.347
	[0.140]**	[0.629]	[0.502]	[0.249]
Year (2010 omitted)				
2011	0.935	0.805	0.73	1.075
	[0.079]	[0.108]	[0.089]**	[0.070]
2012	0.936	0.565		
	[0.075]	[0.078]**		
Service (Army omitted)				
Navy or Coast Guard	1.101	1.528	2.176	0.911
	[0.143]	[0.859]	[1.369]	[0.208]
Marine Corps	1.047	0.929	1.114	1.03
	[0.087]	[0.259]	[0.289]	[0.158]
Air Force	1.139	1.159	1.532	0.971
	[0.146]	[0.552]	[0.706]	[0.247]
More than one service	1.211	0.882	0.895	1.122
	[0.148]	[0.262]	[0.272]	[0.241]
Marital status (married omitted)				
Previously married	1.317	1.047	1.055	1.199
	[0.100]**	[0.264]	[0.260]	[0.164]
Never married	0.936	1.236	0.825	1.072
	[0.076]	[0.375]	[0.238]	[0.167]

Table 3.15—Continued

Variable	Pooled Responses (8,649 observations)	Cohort: 2010, 2011, and 2012 (1,116 observations)	Cohort: 2010 and 2011 (926 observations)	Cohort: 2011 and 2012 (3,032 observations)
Age (26–30 omitted)				
18–25	0.857	1.279	0.768	0.85
	[0.110]	[0.779]	[0.402]	[0.232]
31–35	1.3	1.606	1.28	1.772
	[0.103]**	[0.422]	[0.363]	[0.261]**
36–40	1.787	3.248	2.692	2.817
	[0.167]**	[1.061]**	[0.830]**	[0.480]**
41–45	1.534	2.14	1.704	1.883
	[0.154]**	[0.724]*	[0.584]	[0.346]**
46–50	1.54	5.168	3.419	2.33
	[0.180]**	[1.947]**	[1.300]**	[0.498]**
51–55	1.585	4.323	3.872	1.808
	[0.240]**	[2.145]**	[1.914]**	[0.442]*
56+	1.626	5.452	3.438	2.711
	[0.363]*	[4.439]*	[2.588]	[0.887]**
VA rating (10 and 20 omitted)				
30 or 40	1.084	1.058	1.274	0.925
	[0.187]	[0.746]	[0.829]	[0.266]
50 or 60	1.431	1.739	2.069	1.281
	[0.239]*	[1.154]	[1.298]	[0.341]
70 or 80	1.634	2.043	3.036	1.498
	[0.265]**	[1.299]	[1.776]	[0.386]
90 or 100	1.868	2.226	2.826	1.751
	[0.299]**	[1.376]	[1.596]	[0.442]*
Pending or under appeal	1.582	1.845	3.268	1.457
	[0.252]**	[1.198]	[1.990]	[0.374]
No rating	0.853	1.162	1.35	0.886
	[0.137]	[0.773]	[0.830]	[0.235]
Rank (E1–E4 omitted)				
E5–E9 (NCO)	0.719	0.396	0.394	0.583
	[0.052]**	[0.106]**	[0.104]**	[0.078]**
Warrant officer	0.56	0.069	0.076	0.448

Table 3.15—Continued

Variable	Pooled Responses (8,649 observations)	Cohort		
		2010, 2011, and 2012 (1,116 observations)	2010 and 2011 (926 observations)	2011 and 2012 (3,032 observations)
	[0.149]*	[0.077]*	[0.090]*	[0.205]
O1–O3	0.489	0.64	0.482	0.521
	[0.067]**	[0.285]	[0.204]	[0.130]**
O4–O6	0.511	0.249	0.188	0.501
	[0.081]**	[0.147]*	[0.105]**	[0.143]*
Injury type				
Amputation	0.432	0.46	0.453	0.455
	[0.048]**	[0.133]**	[0.123]**	[0.092]**
Burn	0.56	0.699	0.463	0.636
	[0.075]**	[0.269]	[0.160]*	[0.154]
PTSD	4.605	4.53	4.891	4.116
	[0.327]**	[1.104]**	[1.184]**	[0.545]**
Spinal cord	1.426	1.471	1.378	1.374
	[0.106]**	[0.348]	[0.345]	[0.178]*
TBI	1.543	1.617	1.558	1.813
	[0.093]**	[0.323]*	[0.316]*	[0.195]**
Vision loss	0.77	0.817	0.763	0.643
	[0.120]	[0.379]	[0.385]	[0.175]
Other physical	1.063	0.948	0.873	0.968
	[0.059]	[0.171]	[0.162]	[0.095]
Other mental	2.975	3.115	3.11	3.201
	[0.233]**	[0.839]**	[0.813]**	[0.460]**
No injury	0.537	1.658	1.86	0.589
	[0.115]**	[1.236]	[1.530]	[0.247]

NOTE: Robust standard errors are given in square brackets. ** = $p < 0.01$. * = $p < 0.05$.

group), NCOs, warrant officers, and commissioned officers are less likely to screen positive for probable depression. Individuals with mental health conditions are more likely to screen positive than those who do not have mental conditions. Specifically, respondents with PTSD and TBI have higher probabilities to screen positive for depression. The results also suggest that respondents with other mental health conditions are also more likely to screen positive. However, because depression was not a specific response option, those who are suffering from it may have answered "other mental health," thereby rendering this result difficult to interpret.

On the other hand, respondents with amputation or burns are less likely to screen positive for probable depression.

Summary

We explored five of the seven strategic objectives pertaining to mental health and resiliency:

- the percentage of alumni who visited a health care professional for help with emotional issues (1a)
- the percentage of alumni who talked with OEF or OIF veterans as a way of coping with feelings of stress or emotional and mental health outcomes (1b)
- the percentage of alumni whose emotional problems had interfered with work or other regular activities (1d)
- the percentage of alumni who were unable to escape the memories or effects of upsetting military experiences (1e)
- the percentage of alumni who were able to adapt to change or bounce back after experiencing illness, injury, or hardship (1g).

Some characteristics are associated with a respondent's decision to visit a health care professional for help with emotional issues. Female respondents are more likely to visit a professional than male respondents, older respondents more likely than 26- to 30-year-olds, and those with higher VA disability ratings more likely than those with more-minor impairments. Respondents with mental health conditions are more likely to seek care, whereas those with burns or amputations are significantly less likely to seek treatment. With regard to those who do not seek help from a health care professional for their emotional issues, the reasons cited were, most commonly, inconsistent treatment, concern about future career plans being jeopardized, feeling weak or worried about being stigmatized by friends and family, and not being comfortable with existing resources.

Only Marine Corps respondents and those with PTSD or TBI were significantly more likely than their respective reference groups to talk with OEF or OIF veterans about their emotional or mental health concerns. However, when considering more broadly the full spectrum of resources that are being used, respondents indicated that they made use of two, on average, with VA Medical Centers and prescription medications being the most common. In addition, approximately 10 to 20 percent of respondents reported using WWP Connect, the organization's private online social networking tool.

The third and fifth goals we examined, 1d and 1g, deal with emotional problems interfering with work or other daily activities and resilience, respectively, which may be thought of as the ability to cope. Men experience better outcomes than women across the two dimensions, as do younger respondents versus older ones. Those respondents who have relatively low disability ratings handle emotional problems, change, and illness or injury better than those with higher ratings. Single respondents are more resilient than married, and previously married respondents are more likely than married respondents to report that emotional problems interfered with their daily activities. Finally, respondents with injuries and disorders, including PTSD, spinal-cord injuries, TBI, and other mental health conditions, are more affected day to day by their emotional struggles, and these same respondents have a harder time adapting to change or bouncing back from other injuries and illnesses.

We considered the likelihood of screening positive for PTSD, an alternative to WWP's metric pertaining to the probability of being unable to escape the memories of a frightening military experience. Married respondents, relative to those who were previously married, are less likely to experience these symptoms. Individuals with higher disability ratings and who have been diagnosed with mental health conditions are more likely to report these outcomes than are those who did not report these mental conditions.

Finally, we examined an outcome that is not currently part of WWP's strategic objective: the likelihood that an individual screens positive for MDD. We found that junior enlisted respondents are more likely to screen for MDD than are officers, and those with mental health conditions, spinal-cord injuries, or TBI are more likely than those without these injuries. Respondents with amputations or burns are less likely to screen positive for MDD than those without amputations or burns.

Ensure That Wounded Warriors Are Well-Adjusted in Body

Strategic Objective 2b: Decrease the Percentage of Alumni Whose Physical Health Problems Interfere with Work or Regular Activities

This strategic objective is based on a question that more generally asks about problems with work or other regular daily activities as a result of the respondent's physical health and is very similar in nature to objective 1d, which considered the same effects as a result of emotional problems. Specifically, it asks, "During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?" Possible responses are

- cut down the amount of time you spent on work or other activities
- accomplished less than you would like
- were limited in the kind of work you do or other activities
- had difficulty performing the work you do or other activities (for example, it took extra effort).

The fourth option is the one on which WWP is focused for strategic objective 2b, and Table 3.16 summarizes the overall results.

The 2011 results meet WWP's goal of 64 percent in the full sets of responses. Only the full set of responses in 2012 met WWP's goal of 64 percent; cohort percentages were higher than in 2011 and therefore further from the new, decreased goal of 62 percent.

Like strategic objective 1b, this question derives from the RAND VR-36, questions 13–16, to form a construct called Role–Physical. Similar to the Role–Emotional scale, it measures the impact that physical health has on daily functions, such as work and other activities. In Table 3.17 and in Table A.4 in the appendix, we present regression results that consider how the VR-36 metric and WWP's measure of the effects of physical health problems differ by demographic and service characteristics and experiences.

Table 3.17 presents results of an analysis of the relationship between individual and service characteristics on the extent to which physical health affects daily activities. Female respondents have lower scores than males on the Role–Physical scale, indicating greater impact of physical health on work or other activities. Never-married respondents had higher scores

Table 3.16
Do Wounded Warriors' Physical Health Problems Interfere with Work or Regular Activities?

Survey	Baseline (wave 1)	2011 (wave 2)	2012 (wave 3)
Overall	65.77%	64.52%	62.47%
	(1.47)	(1.02)	(0.65)
2010, 2011, and 2012	68.50%	64.56%	66.23%
	(2.38)	(2.47)	(2.41)
2010 and 2011	67.92%	63.75%	
	(2.13)	(2.19)	
2011 and 2012		64.13%	66.24%
		(1.23)	(1.20)
Goal		64%	62%

SOURCE: Overall and cohort percentages were computed by Westat and compiled by WWP as it determined objectives and goals for its alumni. Table reproduced from materials provided by WWP.

NOTE: Standard errors are given in parentheses.

Table 3.17
Whose Daily Activities Are Most Affected by Physical Health? Ordinary Least Squares Model

		Cohort		
Variable	Pooled Responses (8,609 observations)	2010, 2011, and 2012 (1,113 observations)	2010 and 2011 (934 observations)	2011 and 2012 (3,005 observations)
Female	–2.346	–2.058	–1.229	–2.748
	[0.446]**	[1.376]	[1.700]	[0.786]**
Year (2010 omitted)				
2011	0.513	2.469	2.654	–0.126
	[0.397]	[0.662]**	[0.582]**	[0.320]
2012	0.681	1.705		
	[0.373]	[0.671]*		
Service (Army omitted)				
Navy or Coast Guard	–0.3	–2.135	–1.42	–1.393
	[0.575]	[1.882]	[1.996]	[0.994]
Marine Corps	0.935	1.024	–0.146	1.071
	[0.400]*	[1.257]	[1.260]	[0.718]
Air Force	–0.338	–1.088	–0.811	–0.518
	[0.594]	[1.972]	[2.329]	[1.034]

Table 3.17—Continued

Variable	Pooled Responses (8,609 observations)	Cohort		
		2010, 2011, and 2012 (1,113 observations)	2010 and 2011 (934 observations)	2011 and 2012 (3,005 observations)
More than one service	–0.444	0.881	1.35	–0.49
	[0.528]	[1.414]	[1.662]	[0.926]
Marital status (married omitted)				
Previously married	0.482	-0.718	-0.255	1.288
	[0.338]	[1.069]	[1.039]	[0.613]*
Never married	1.862	1.301	2.33	1.576
	[0.396]**	[1.375]	[1.346]	[0.720]*
Age (26–30 omitted)				
18–25	–0.164	3.148	4.735	–0.038
	[0.629]	[3.204]	[2.571]	[1.342]
31–35	–0.776	–0.642	0.035	–1.504
	[0.390]*	[1.277]	[1.367]	[0.692]*
36–40	–2.96	–2.672	–3.245	–3.594
	[0.440]**	[1.472]	[1.429]*	[0.774]**
41–45	–3.143	–2.639	–3.256	–3.87
	[0.472]**	[1.591]	[1.562]*	[0.837]**
46–50	–3.903	–6.896	–6.272	–5.267
	[0.520]**	[1.616]**	[1.658]**	[0.903]**
51–55	–5.093	–5.372	–4.444	–5.88
	[0.667]**	[1.840]**	[2.139]*	[1.062]**
56+	–6.336	–8.695	–8.043	–7.066
	[0.808]**	[2.157]**	[2.144]**	[1.143]**
VA rating (10 and 20 omitted)				
30 or 40	–0.777	0.651	–2.058	–0.199
	[0.863]	[3.849]	[3.134]	[1.507]
50 or 60	–3.037	–0.734	–5.154	–2.686
	[0.824]**	[3.486]	[2.968]	[1.427]
70 or 80	–4.078	–5.245	–8.758	–4.19
	[0.787]**	[3.279]	[2.693]**	[1.364]**
90 or 100	–6.049	–5.135	–8.148	–5.424
	[0.771]**	[3.265]	[2.673]**	[1.337]**

Table 3.17—Continued

Variable	Pooled Responses (8,609 observations)	Cohort: 2010, 2011, and 2012 (1,113 observations)	Cohort: 2010 and 2011 (934 observations)	Cohort: 2011 and 2012 (3,005 observations)
Pending or under appeal	–5.602	–3.886	–8.19	–5.291
	[0.777]**	[3.249]	[2.750]**	[1.373]**
No rating	–2.173	–0.882	–2.9	–0.854
	[0.785]**	[3.357]	[2.873]	[1.418]
Rank (E1–E4 omitted)				
E5–E9 (NCO)	0.212	0.803	1.006	–0.165
	[0.335]	[1.135]	[1.135]	[0.589]
Warrant officer	1.071	10.569	8.484	0.822
	[1.231]	[3.852]**	[4.409]	[2.200]
O1–O3	1.287	0.278	0.962	–0.114
	[0.665]	[1.947]	[1.875]	[1.218]
O4–O6	1.439	1.896	1.591	–0.293
	[0.753]	[2.739]	[2.683]	[1.285]
Injury type				
Amputation	0.699	1.744	1.637	0.976
	[0.560]	[1.382]	[1.377]	[0.976]
Burn	1.791	–0.594	0.869	1.1
	[0.641]**	[1.564]	[1.392]	[1.112]
PTSD	–3.294	–3.52	–3.977	–3.425
	[0.368]**	[1.224]**	[1.196]**	[0.677]**
Spinal cord	–5.037	–4.202	–3.518	–5.062
	[0.306]**	[0.960]**	[0.990]**	[0.507]**
TBI	–2.771	–2.624	–1.693	–2.963
	[0.287]**	[0.932]**	[0.941]	[0.509]**
Vision loss	–0.046	–1.441	–3.354	0.29
	[0.652]	[1.610]	[1.629]*	[1.146]
Other physical	–3.715	–1.217	–1.569	–3.644
	[0.269]**	[0.837]	[0.887]	[0.471]**
Other mental	–2.724	–2.566	–1.964	–2.592
	[0.295]**	[0.905]**	[0.975]*	[0.509]**
No injury	2.569	1.577	–2.675	1.537
	[0.817]**	[3.640]	[3.553]	[1.553]

Table 3.17—Continued

Variable	Pooled Responses (8,609 observations)	Cohort: 2010, 2011, and 2012 (1,113 observations)	Cohort: 2010 and 2011 (934 observations)	Cohort: 2011 and 2012 (3,005 observations)
Constant	49.727	46.832	49.316	51.158
	[0.901]**	[3.563]**	[2.998]**	[1.469]**

NOTE: Robust standard errors are given in square brackets. ** = p < 0.01. * = p < 0.05.

than married respondents, and 26- to 30-year-olds had higher scores than older respondents, indicating less negative impact of health on activities. VA ratings and injuries were also important predictors of Role–Physical score: The higher the VA rating, the worse impact of physical health on work and activities; moreover, those with PTSD, spinal-cord injuries, TBI, and other physical and mental conditions reported that physical injuries had a greater impact on daily activities than for respondents who did not report these types of injuries. As expected, regression estimates using WWP's metric, the probability of reporting that physical problems interfered with work or regular activities, as reported in Table A.4 in the appendix, are similar.

Strategic Objective 2e: Decrease the Percentage of Alumni Who Are Overweight or Obese

WWP survey respondents report both their height and weight, and, using those data, Westat constructed a measure of BMI. Individuals with a BMI in the range of 25–30 are considered overweight, and those with a BMI in excess of 30 are considered obese. WWP compiled the results shown in Table 3.18 based on Westat's findings.

Although WWP's strategic objective describes the percentage of respondents who are overweight or obese, the figures shown in Table 3.18 include only those individuals whose

Table 3.18
Are Wounded Warriors Obese?

Survey	Baseline (wave 1)	2011 (wave 2)	2012 (wave 3)
Overall	40.49%	41.58%	41.51%
	(1.57)	(1.05)	(0.66)
2010, 2011, and 2012	46.32%	45.07%	43.72%
	(2.61)	(2.57)	(2.54)
2010 and 2011	43.36%	44.00%	
	(2.31)	(2.28)	
2011 and 2012		42.92%	43.70%
		(1.27)	(1.26)
Goal		39%	38%

SOURCE: Overall and cohort percentages were computed by Westat and compiled by WWP as it determined objectives and goals for its alumni. Table reproduced from materials provided by WWP.

NOTE: Standard errors are given in parentheses. WWP's strategic objective describes these numbers as the percentage of alumni who are overweight or obese, but they reflect only those whose BMIs are categorized as obese.

BMIs are in the 30-or-more range. Therefore, approximately 40 percent of all respondents are obese, and the 2011 and 2012 percentages remain higher than WWP's goals of 39 and 38 percent, respectively. Table 3.19 reproduces the 2010 and 2011 overweight or obese results for the full sets of responses and the cohort of repeat respondents. When a BMI of 25 or greater is considered, the rate is approximately double the obese-only range. Therefore, in addition to the 40 percent of respondents who are considered obese, roughly the same number of respondents are overweight.

Table 3.20 shows regression results for the probability of different groups of WWP alumni being obese, as measured by BMI. Female alumni are less likely to be obese, while individuals who are married are consistently more likely to be obese than are previously married or never-married respondents. Across rank groups, junior enlisted are generally more likely to be obese

Table 3.19
Are Wounded Warriors Overweight or Obese?

Survey	Baseline (wave 1)	2011 (wave 2)	2012 (wave 3)
Overall	81.59%	83.29%	83.36%
	(1.24)	(0.80)	(0.50)
2010, 2011, and 2012	84.74%	84.27%	84.03%
	(1.88)	(1.88)	(1.88)
2010 and 2011	82.14%	83.37%	
	(1.79)	(1.71)	
2011 and 2012		84.66%	84.87%
		(0.92)	(0.91)

NOTE: Standard errors are given in parentheses.

Table 3.20
Are Wounded Warriors Obese? Logit Model

		Cohort		
Variable	Pooled Responses (8,560 observations)	2010, 2011, and 2012 (1,105 observations)	2010 and 2011 (916 observations)	2011 and 2012 (3,023 observations)
Female	0.626	0.469	0.52	0.652
	[0.061]**	[0.244]	[0.208]	[0.117]*
Year (2010 omitted)				
2011	0.979	0.919	0.974	1.019
	[0.072]	[0.088]	[0.087]	[0.043]
2012	0.985	0.821		
	[0.069]	[0.089]		
Service (Army omitted)				
Navy or Coast Guard	0.944	1.583	1.293	0.954
	[0.107]	[0.689]	[0.564]	[0.201]

Table 3.20—Continued

Variable	Pooled Responses (8,560 observations)	Cohort		
		2010, 2011, and 2012 (1,105 observations)	2010 and 2011 (916 observations)	2011 and 2012 (3,023 observations)
Marine Corps	0.774	1.114	0.806	0.854
	[0.062]*	[0.300]	[0.193]	[0.129]
Air Force	0.72	0.796	0.875	0.632
	[0.086]**	[0.370]	[0.379]	[0.146]*
More than one service	1.032	1.47	1.463	1.128
	[0.111]	[0.559]	[0.507]	[0.215]
Marital status (married omitted)				
Previously married	0.764	0.569	0.574	0.692
	[0.052]**	[0.151]*	[0.140]*	[0.089]**
Never married	0.689	0.489	0.475	0.724
	[0.056]**	[0.165]*	[0.132]**	[0.114]*
Age (26–30 omitted)				
18–25	0.608	1.08	0.917	0.699
	[0.082]**	[0.539]	[0.432]	[0.202]
31–35	1.47	1.452	1.539	1.5
	[0.111]**	[0.401]	[0.415]	[0.212]**
36–40	1.643	1.213	1.474	1.663
	[0.143]**	[0.401]	[0.431]	[0.272]**
41–45	2.131	2.015	2.204	2.525
	[0.198]**	[0.684]*	[0.696]*	[0.438]**
46–50	1.839	2.377	2.098	2.055
	[0.196]**	[0.940]*	[0.767]*	[0.405]**
51–55	1.861	2.477	1.882	2.236
	[0.264]**	[1.230]	[0.935]	[0.548]**
56+	1.63	2.508	1.562	2.257
	[0.307]**	[1.512]	[0.855]	[0.655]**
VA rating (10 and 20 omitted)				
30 or 40	0.945	1.214	1.261	0.893
	[0.162]	[0.976]	[0.812]	[0.280]
50 or 60	1.164	2.969	2.033	1.081
	[0.189]	[2.213]	[1.228]	[0.319]

Table 3.20—Continued

Variable	Pooled Responses (8,560 observations)	Cohort		
		2010, 2011, and 2012 (1,105 observations)	2010 and 2011 (916 observations)	2011 and 2012 (3,023 observations)
70 or 80	1.215	2.945	2.584	1.138
	[0.190]	[2.059]	[1.453]	[0.320]
90 or 100	1.161	2.228	1.755	0.972
	[0.180]	[1.561]	[0.978]	[0.271]
Pending or under appeal	0.928	2.269	1.493	0.886
	[0.143]	[1.600]	[0.874]	[0.249]
No rating	0.692	1.824	1.206	0.744
	[0.109]*	[1.348]	[0.725]	[0.217]
Rank (E1–E4 omitted)				
E5–E9 (NCO)	0.767	0.649	0.663	0.655
	[0.051]**	[0.156]	[0.153]	[0.082]**
Warrant officer	0.428	0.152	0.172	0.572
	[0.115]**	[0.161]	[0.184]	[0.249]
O1–O3	0.479	0.24	0.259	0.326
	[0.064]**	[0.115]**	[0.115]**	[0.087]**
O4–O6	0.447	0.294	0.285	0.325
	[0.064]**	[0.150]*	[0.139]*	[0.083]**
Injury type				
Amputation	0.726	0.609	0.756	0.758
	[0.084]**	[0.180]	[0.204]	[0.160]
Burn	0.868	1.776	1.317	1.09
	[0.114]	[0.624]	[0.396]	[0.236]
PTSD	1.304	1.653	1.747	1.308
	[0.092]**	[0.434]	[0.416]*	[0.178]*
Spinal cord	1.066	0.756	0.927	1.185
	[0.072]	[0.187]	[0.224]	[0.141]
TBI	0.953	0.848	0.811	1.01
	[0.055]	[0.175]	[0.156]	[0.107]
Vision loss	0.77	0.796	0.611	0.821
	[0.103]	[0.297]	[0.247]	[0.196]
Other physical	1.083	1.153	1.194	1.03
	[0.056]	[0.203]	[0.205]	[0.097]

Table 3.20—Continued

Variable	Pooled Responses (8,560 observations)	Cohort: 2010, 2011, and 2012 (1,105 observations)	Cohort: 2010 and 2011 (916 observations)	Cohort: 2011 and 2012 (3,023 observations)
Other mental	1.082	0.958	0.87	1.109
	[0.065]	[0.195]	[0.183]	[0.117]
No injury	0.8	1.144	0.894	1.056
	[0.134]	[0.736]	[0.641]	[0.325]

NOTE: Robust standard errors are given in square brackets. ** = p < 0.01. * = p < 0.05.

than NCOs or commissioned officers (also true of warrant officers in the pooled responses specification). Alumni in the Marine Corps and Air Force are usually less likely to be obese than alumni in the Army. So are younger respondents: Respondents age 31 and older are more likely than 26- to 30-year-olds to be obese. Respondents who reported having PTSD are also more likely to be obese.

Summary

With regard to physical health, we examined the following strategic objectives:

- the frequency with which respondents indicated that they had experienced problems with work or other daily activities as a result of their physical health (2b)
- the rate of overweight and obesity among survey respondents (2e).

Results indicate that never-married respondents are significantly less likely to have problems with work or other activities as a result of their physical health, and less likely to be overweight or obese, than their married counterparts. Younger respondents experience more-favorable outcomes in both areas than older alumni do. Respondents suffering from PTSD are more likely to be overweight or obese. And they, along with respondents who have suffered spinal-cord injuries, TBI, or other mental or physical health injuries, are more likely to experience disruptions in work or other daily activities due to their physical limitations. This is also true for individuals with higher disability ratings. Finally, female respondents are much less likely to be overweight than male respondents, but female respondents report greater negative effects of physical health on work and other daily activities.

Ensure That Wounded Warriors Are Economically Empowered

The third set of strategic objectives defined by WWP involves economic outcomes. Specifically, the organization aims to see improvements across educational, employment, and financial domains. In this section, we focus on five of the seven strategic objectives.

Strategic Objective 3a: Increase the Percentage of Alumni Who Complete Associate's Degrees, Bachelor's Degrees, or Higher

Survey respondents were asked to report the highest degree or level of school they had completed, with the following choices:

- less than 12th grade
- regular high school diploma
- GED
- business, technical, or vocational school training leading to a certificate or diploma
- some college credit but less than one year of college credit
- one or more years of college credit but no degree
- associate's degree (e.g., associate of art [A.A.], associate of science [A.S.])
- bachelor's degree (e.g., bachelor of art [B.A.], bachelor of science [B.S.])
- master's degree (e.g., master of art [M.A.], master of science [M.S.], master of engineering [M.Eng.], master of education [M.Ed.], master of social work [M.S.W.], master of business administration [M.B.A.])
- professional or doctorate degree beyond a bachelor's degree (e.g., doctor of medicine [M.D.], doctor of philosophy [Ph.D.], doctor of education [Ed.D.], doctor of dental surgery [D.D.S.], doctor of veterinary medicine [D.V.M.], bachelor of law [LL.B.], doctor of law [J.D.]).

This objective focuses on the last four educational outcomes, and Table 3.21 describes the survey responses and WWP's goals. Among both the full set of responses and those for three cohorts of repeat respondents, WWP's goals of 34 and 36 percent were met in the 2011 and 2012 surveys.

Table 3.21
Have Wounded Warriors Completed Associate's Degrees, Bachelor's Degrees, or Higher?

Survey	Baseline (wave 1)	2011 (wave 2)	2012 (wave 3)
Overall	32.65%	36.02%	36.99%
	(1.40)	(1.00)	(0.64)
2010, 2011, and 2012	32.73%	37.47%	40.21%
	(2.39)	(2.46)	(2.49)
2010 and 2011	33.73%	38.23%	
	(2.12)	(2.18)	
2011 and 2012		37.81%	40.76%
		(1.22)	(1.24)
Goal		34%	36%

SOURCE: Overall and cohort percentages were computed by Westat and compiled by WWP as it determined objectives and goals for its alumni. Table reproduced from materials provided by WWP.

NOTE: Standard errors are given in parentheses.

As with previous analyses, we now consider whether the subsets of the population perform differently with respect to this outcome. As illustrated in Table 3.22, female respondents

Table 3.22
Have Wounded Warriors Completed Associate's Degrees, Bachelor's Degrees, or Higher? Logit Model

		Cohort		
Variable	**Pooled Responses (8,960 observations)**	**2010, 2011, and 2012 (1,146 observations)**	**2010 and 2011 (979 observations)**	**2011 and 2012 (3,106 observations)**
Female	2.059	1.355	2.22	1.825
	[0.211]**	[0.677]	[0.873]*	[0.345]**
Year (2010 omitted)				
2011	1.238	1.26	1.262	0.897
	[0.099]**	[0.126]*	[0.114]**	[0.035]**
2012	1.283	1.403		
	[0.099]**	[0.147]**		
Service (Army omitted)				
Navy or Coast Guard	1.17	1.324	0.906	1.345
	[0.140]	[0.598]	[0.392]	[0.299]
Marine Corps	1.029	1.658	1.241	1.166
	[0.092]	[0.514]	[0.349]	[0.192]
Air Force	2.092	2.002	2.73	1.966
	[0.265]**	[0.908]	[1.210]*	[0.496]**
More than one service	0.988	0.892	0.753	1.363
	[0.117]	[0.357]	[0.291]	[0.282]
Marital status (married omitted)				
Previously married	0.789	0.768	0.665	0.748
	[0.059]**	[0.227]	[0.196]	[0.104]*
Never married	1.194	1.009	0.87	1.13
	[0.105]*	[0.328]	[0.244]	[0.189]
Age (26–30 omitted)				
18–25	0.288	0.171	0.255	0.489
	[0.053]**	[0.133]*	[0.158]*	[0.152]*
31–35	1.398	1.182	1.089	1.315
	[0.115]**	[0.344]	[0.301]	[0.201]
36–40	1.534	0.887	0.938	1.457
	[0.146]**	[0.316]	[0.302]	[0.254]*

Table 3.22—Continued

Variable	Pooled Responses (8,960 observations)	Cohort: 2010, 2011, and 2012 (1,146 observations)	Cohort: 2010 and 2011 (979 observations)	Cohort: 2011 and 2012 (3,106 observations)
41–45	1.876	1.138	1.026	1.417
	[0.192]**	[0.415]	[0.355]	[0.270]
46–50	1.77	0.875	0.992	1.461
	[0.210]**	[0.393]	[0.398]	[0.315]
51–55	1.416	0.844	0.806	0.955
	[0.223]*	[0.494]	[0.491]	[0.260]
56+	3.06	1.619	1.89	2.165
	[0.655]**	[0.963]	[1.033]	[0.708]*
VA rating (10 and 20 omitted)				
30 or 40	1.302	1.4	1.557	0.878
	[0.232]	[1.238]	[1.072]	[0.279]
50 or 60	1.12	1.965	1.322	0.866
	[0.191]	[1.689]	[0.908]	[0.257]
70 or 80	1.251	3.143	2.208	0.858
	[0.207]	[2.625]	[1.451]	[0.244]
90 or 100	0.98	2.182	1.176	0.764
	[0.161]	[1.798]	[0.767]	[0.216]
Pending or under appeal	0.762	2.247	1.493	0.725
	[0.125]	[1.910]	[1.006]	[0.209]
No rating	0.747	1.387	0.895	0.542
	[0.124]	[1.199]	[0.617]	[0.161]*
Rank (E1–E4 omitted)				
E5–E9 (NCO)	1.275	1.218	1.155	1.383
	[0.094]**	[0.341]	[0.287]	[0.184]*
Warrant officer	2.532	5.226	3.405	2.042
	[0.641]**	[5.112]	[3.405]	[0.952]
O1–O3	88.8	83.896	48.058	184.559
	[29.171]**	[91.912]**	[40.198]**	[133.809]**
O4–O6	18.605	15.046	20.767	21.417
	[3.746]**	[8.932]**	[11.862]**	[8.012]**

Table 3.22—Continued

Variable	Pooled Responses (8,960 observations)	Cohort		
		2010, 2011, and 2012 (1,146 observations)	2010 and 2011 (979 observations)	2011 and 2012 (3,106 observations)
Injury type				
Amputation	0.922	1.12	1.026	0.985
	[0.118]	[0.390]	[0.307]	[0.229]
Burn	0.927	0.343	0.59	0.936
	[0.132]	[0.163]*	[0.231]	[0.227]
PTSD	0.863	0.805	0.569	1.002
	[0.065]	[0.217]	[0.139]*	[0.144]
Spinal cord	0.878	0.783	0.854	0.999
	[0.067]	[0.213]	[0.222]	[0.131]
TBI	0.784	0.624	0.656	0.695
	[0.050]**	[0.141]*	[0.138]*	[0.079]**
Vision loss	1.217	1.609	1.604	1.615
	[0.180]	[0.725]	[0.648]	[0.423]
Other physical	1.046	1.064	0.844	1.237
	[0.060]	[0.205]	[0.163]	[0.127]*
Other mental	0.917	1.157	1.507	0.974
	[0.063]	[0.271]	[0.358]	[0.117]
No injury	1.084	1.059	0.211	1.004
	[0.187]	[0.586]	[0.134]*	[0.362]

NOTE: Robust standard errors are given in square brackets. ** = $p < 0.01$. * = $p < 0.05$.

are significantly more likely to earn associate's, bachelor's, or higher degrees than male respondents are. This is consistent with the general civilian population (see, for instance, Peter, Horn, and Carroll, 2005). With the exception of the cohort of respondents who completed the 2011 and 2012 surveys, alumnus respondents were more likely to have completed associate's degrees, bachelor's degrees, or higher in 2011 and 2012 than they were in 2010. In the last cohort (2011 and 2012 respondents), individuals in 2011 were less likely than in 2012 to have completed an associate's or bachelor's degree or higher. Differences in education level across marital-status groups point to higher education among those married than those previously married. Because of entrance requirements, it is not surprising that the vast majority of commissioned-officer respondents reported having completed associate's degrees or higher and at a significantly greater rate than junior enlisted respondents. Respondents who suffer from PTSD and TBI are less likely to have completed associate's degrees, bachelor's degrees, or higher.

Strategic Objective 3b: Increase the Percentage of Alumni Who Complete Business, Technical, or Vocational School (Certificate or Diploma)

Strategic objective 3b focuses on those who have earned business, technical, or vocational school training leading to certificates or diplomas. As reported in Table 3.23, 3 to 4 percent of all survey respondents have earned certificates or diplomas from business, technical, or vocational schools.

For the remainder of the analysis on this particular strategic objective, we focus on a subset of respondents. Specifically, we include in our sample for analysis only those respondents who completed business, technical, or vocational degrees or lower degrees (less than 12th grade, regular high school diploma, or GED), and therefore exclude any respondent with some college or more. The motivation for this is that an increase in the desired percentage might result from fewer alumni achieving higher degrees (some college and above). For instance, an increase in this measure might come at the cost of fewer alumni earning bachelor's degrees. Therefore, it seems that the goal would be for those individuals completing less than 12th grade, earning regular high school diplomas, or earning GEDs to complete more schooling and earn certificates or diplomas from business, technical, or vocational schools. Further, we restrict the results to enlisted (E1–E4) and NCO (E5–E9) and warrant-officer respondents. Although some commissioned officers (O1–O6) who responded to the survey indicate having less than an associate's degree, educational requirements for being an officer in the U.S. military make this analysis relevant for only enlisted respondents. We reconstruct the results from Table 3.23, using only the first four educational outcomes and restricting the sample to enlisted and warrant-officer respondents, and present the percentages in Table 3.24.

When we compute the percentage of alumni with business, technical, or vocational degrees, among only those who have not earned higher degrees, the surveys indicate that 15 to 20 percent of all enlisted and warrant-officer respondents have earned business, technical, or vocational degrees.

Table 3.23
Have Wounded Warriors Completed Business, Technical, or Vocational School?

Survey	Baseline (wave 1)	2011 (wave 2)	2012 (wave 3)
Overall	3.40%	4.29%	4.32%
	(0.54)	(0.42)	(0.27)
2010, 2011, and 2012	4.12%	3.88%	3.09%
	(1.01)	(0.98)	(0.88)
2010 and 2011	3.81%	3.62%	
	(0.86)	(0.84)	
2011 and 2012		4.46%	3.87%
		(0.52)	(0.49)
Goal		3.7%	3.9%

SOURCE: Overall and cohort percentages were computed by Westat and compiled by WWP as it determined objectives and goals for its alumni. Table reproduced from materials provided by WWP.

NOTE: Standard errors are given in parentheses.

Table 3.24
Have Wounded Warriors Without Higher Degrees Completed Business, Technical, or Vocational School?

Survey	Baseline (wave 1)	2011 (wave 2)	2012 (wave 3)
Overall	15.57%	18.73%	18.37%
	(2.33)	(1.72)	(1.06)
2010, 2011, and 2012	17.02%	18.99%	15.00%
	(3.90)	(4.44)	(4.02)
2010 and 2011	16.10%	17.65%	
	(3.40)	(3.79)	
2011 and 2012		19.94%	19.17%
		(2.17)	(2.23)

SOURCE: Overall and cohort percentages were computed by Westat and compiled by WWP as it determined objectives and goals for its alumni. Table reproduced from materials provided by WWP.

NOTE: Standard errors are given in parentheses.

Table 3.25 presents the results of a regression analysis that explores the relationship between individual and service characteristics and the likelihood of completing a business,

Table 3.25
Have Wounded Warriors Completed Business, Technical, or Vocational School? Logit Model

		Cohort		
Variable	Pooled Responses (2,057 observations)	2010, 2011, and 2012 (233 observations)	2010 and 2011 (174 observations)	2011 and 2012 (643 observations)
Female	0.906	6.456	2.439	1.756
	[0.283]	[7.056]	[3.258]	[0.967]
Year (2010 omitted)				
2011	1.139	1.463	1.27	1.026
	[0.234]	[0.735]	[0.546]	[0.170]
2012	1.109	0.984		
	[0.210]	[0.409]		
Service (Army omitted)				
Navy or Coast Guard	1.798		4.854	2.444
	[0.461]*		[6.678]	[1.328]
Marine Corps	0.819	0.171	0.143	0.804
	[0.156]	[0.173]	[0.177]	[0.335]
Air Force	1.931	5.291	4.159	3.656
	[0.754]	[6.422]	[5.209]	[3.691]

Table 3.25—Continued

Variable	Pooled Responses (2,057 observations)	Cohort: 2010, 2011, and 2012 (233 observations)	Cohort: 2010 and 2011 (174 observations)	Cohort: 2011 and 2012 (643 observations)
More than one service	0.616	1.175	0.707	0.977
	[0.174]	[0.950]	[0.537]	[0.593]
Marital status (married omitted)				
Previously married	0.998	1.899	1.147	0.949
	[0.163]	[1.307]	[0.808]	[0.312]
Never married	0.665	2.783	1.563	0.402
	[0.147]	[2.673]	[1.430]	[0.174]*
Age (26–30 omitted)				
18–25	0.497			0.197
	[0.156]*			[0.165]
31–35	1.588	13.159	25.233	1.535
	[0.302]*	[12.888]	[27.640]**	[0.574]
36–40	1.953	13.917	23.475	1.908
	[0.434]**	[14.581]*	[27.472]**	[0.810]
41–45	2.227	5.449	13.572	2.635
	[0.510]**	[6.086]	[16.986]*	[1.110]*
46–50	1.518	2.369	3.294	0.527
	[0.401]	[3.337]	[5.017]	[0.303]
51–55	1.665	1.474	8.045	0.764
	[0.567]	[1.986]	[11.011]	[0.546]
56+	2.777	25.585	25.241	3.177
	[1.525]	[46.070]	[41.375]*	[2.417]
VA rating (10 and 20 omitted)				
30 or 40	0.985	11.279	15.083	2.224
	[0.380]	[19.334]	[23.138]	[1.814]
50 or 60	0.772	0.242	2.533	1.031
	[0.282]	[0.477]	[3.868]	[0.848]
70 or 80	0.707	0.699	0.737	0.959
	[0.248]	[1.012]	[0.979]	[0.745]
90 or 100	0.389	0.61	1.095	0.455
	[0.135]**	[0.985]	[1.541]	[0.354]

Table 3.25—Continued

Variable	Pooled Responses (2,057 observations)	Cohort		
		2010, 2011, and 2012 (233 observations)	2010 and 2011 (174 observations)	2011 and 2012 (643 observations)
Pending or under appeal	0.872	2.728	2.624	1.104
	[0.294]	[3.793]	[3.739]	[0.855]
No rating	0.542	0.714	1.828	0.895
	[0.192]	[1.135]	[3.110]	[0.715]
Rank (E1–E4 omitted)[a]				
E5–E9 (NCO)	0.988	1.136	0.979	0.638
	[0.148]	[0.686]	[0.630]	[0.187]
Warrant officer[a]	0.794			
	[0.644]			
Injury type				
Amputation	0.889	0.456		1.169
	[0.264]	[0.365]		[0.644]
Burn	0.625	0.824	1.521	0.541
	[0.231]	[0.641]	[1.379]	[0.385]
PTSD	1.068	0.602	1.616	0.622
	[0.204]	[0.503]	[1.674]	[0.244]
Spinal cord	0.973	3.428	2.279	1.272
	[0.169]	[2.187]	[1.406]	[0.418]
TBI	0.92	1.279	0.77	1.497
	[0.128]	[0.706]	[0.474]	[0.423]
Vision loss	1.454	3.009	3.023	3.839
	[0.489]	[3.265]	[3.627]	[2.857]
Other physical	1.055	1.421	1.01	1.172
	[0.138]	[0.640]	[0.468]	[0.313]
Other mental	1.131	0.753	0.45	1.26
	[0.169]	[0.491]	[0.303]	[0.379]
No injury	0.765			0.643
	[0.353]			[0.497]

NOTE: Robust standard errors are given in square brackets. ** = $p < 0.01$. * = $p < 0.05$.

[a] In the 2010–2012 and 2011–2012 cohort analyses, the probability of having completed business, technical, or vocational school predicted perfectly for warrant officers, so warrant-officer observations are dropped from the regressions (15 and ten observations, respectively).

technical, or vocational degree, among those respondents who have not already completed at least some college. Older respondents are more likely to have completed this kind of degree than 20- to 30-year-olds. Additionally, alumni in the Navy or Coast Guard are more likely than Army respondents to hold these types of degrees.

Strategic Objective 3c: Increase the Percentage of Alumni Who Are Employed Full Time or Part Time or Self-Employed

This strategic objective relies on responses to two questions in the WWP surveys. First, respondents are asked, "Are you currently employed in paid work, either full time or part time?" to which they may respond using these options:

- yes, full time
- yes, part time
- no.

Those who answer "no" then proceed to a series of questions about whether they have been looking for work (and, if not, why not), for how long, and whether they would be able to work if offered a job. Those who responded that they are currently employed are taken directly to a question that asks, "Are you self-employed?" Therefore, respondents reporting that they are self-employed are a subset of those reporting that they are employed full or part time.

Tables 3.26 through 3.28 detail the overall full-time, part-time, and self-employment results compiled by WWP both for the full sets of responses from the three surveys and for the three cohorts of repeat respondents.

WWP's goals for full-time employment were met by the full set of responses only in 2012. Respondents exceeded WWP's goal for part-time and self-employment in 2011 and 2012 (except for pooled self-employed responses in 2012). It is important to note that, although

Table 3.26
Are Wounded Warriors Employed Full Time?

Survey	Baseline (wave 1)	2011 (wave 2)	2012 (wave 3)
Overall	41.47%	42.49%	43.61%
	(1.48)	(1.03)	(0.66)
2010, 2011, and 2012	40.57%	38.70%	38.14%
	(2.50)	(2.49)	(2.47)
2010 and 2011	41.90%	38.74%	
	(2.22)	(2.19)	
2011 and 2012		42.92%	41.99%
		(1.25)	(1.24)
Goal		43%	43.5%

SOURCE: Overall and cohort percentages were computed by Westat and compiled by WWP as it determined objectives and goals for its alumni. Table reproduced from materials provided by WWP.

NOTE: Standard errors are given in parentheses.

Table 3.27
Are Wounded Warriors Employed Part Time?

Survey	Baseline (wave 1)	2011 (wave 2)	2012 (wave 3)
Overall	5.08%	6.26%	6.91%
	(0.66)	(0.51)	(0.34)
2010, 2011, and 2012	3.88%	7.27%	8.25%
	(0.98)	(1.33)	(1.40)
2010 and 2011	3.85%	6.69%	
	(0.87)	(1.13)	
2011 and 2012		6.79%	7.05%
		(0.64)	(0.65)
Goal		5.5%	6.0%

SOURCE: Overall and cohort percentages were computed by Westat and compiled by WWP as it determined objectives and goals for its alumni. Table reproduced from materials provided by WWP.

NOTE: Standard errors are given in parentheses.

Table 3.28
Are Wounded Warriors Self-Employed?

Survey	Baseline (wave 1)	2011 (wave 2)	2012 (wave 3)
Overall	5.22%	5.62%	4.92%
	(1.00)	(0.69)	(0.41)
2010, 2011, and 2012	2.35%	6.25%	6.11%
	(1.17)	(1.83)	(1.79)
2010 and 2011	3.14%	5.83%	
	(1.17)	(1.57)	
2011 and 2012		5.45%	5.73%
		(0.82)	(0.84)
Goal		5.2%	5.2%

SOURCE: Overall and cohort percentages were computed by Westat and compiled by WWP as it determined objectives and goals for its alumni. Table reproduced from materials provided by WWP.

NOTE: Standard errors are given in parentheses.

part of WWP's employment goal is to increase the percentage of alumni who are employed at least part time, it is possible that respondents who report being employed part time would actually prefer full-time employment. In those cases, although employment is certainly preferable to not being able to find work, working only part time would not be the optimal outcome for the alumnus. The survey does not contain a question about how many hours the respondent wishes to work, so our analysis is unable to measure the extent to which part-time employees would prefer to be employed full-time.

Table 3.29 contains regression results for a specification that combines the three employment outcomes into one. In other words, if the respondent is employed full time or part time or is self-employed, the dependent variable takes on a value of 1; 0 otherwise. Note that this

Table 3.29
Are Wounded Warriors Employed? Logit Model

		Cohort		
Variable	**Pooled Responses (8,960 observations)**	**2010, 2011, and 2012 (1,131 observations)**	**2010 and 2011 (969 observations)**	**2011 and 2012 (3,106 observations)**
Female	0.813	0.576	0.883	0.764
	[0.075]*	[0.237]	[0.299]	[0.134]
Year (2010 omitted)				
2011	1.106	1.363	1.263	0.893
	[0.085]	[0.175]*	[0.148]*	[0.049]*
2012	1.121	1.523		
	[0.080]	[0.210]**		
Service (Army omitted)				
Navy or Coast Guard	0.971	0.655	0.409	1.222
	[0.107]	[0.260]	[0.189]	[0.254]
Marine Corps	1.189	1.234	1.111	1.284
	[0.093]*	[0.335]	[0.275]	[0.192]
Air Force	1.269	1.437	1.299	1.67
	[0.161]	[0.763]	[0.636]	[0.441]
More than one service	0.843	1.227	1.086	0.911
	[0.092]	[0.375]	[0.337]	[0.182]
Marital status (married omitted)				
Previously married	0.632	0.619	0.601	0.636
	[0.044]**	[0.152]	[0.144]*	[0.084]**
Never married	0.704	0.614	0.654	0.649
	[0.052]**	[0.164]	[0.156]	[0.093]**
Age (26–30 omitted)				
18–25	0.817	0.227	0.255	0.532
	[0.096]	[0.129]*	[0.130]**	[0.144]*
31–35	1.047	1.033	1.137	0.956
	[0.078]	[0.275]	[0.288]	[0.134]
36–40	1.054	0.947	0.812	0.929
	[0.091]	[0.290]	[0.227]	[0.150]

Table 3.29—Continued

Variable	Pooled Responses (8,960 observations)	Cohort		
		2010, 2011, and 2012 (1,131 observations)	2010 and 2011 (969 observations)	2011 and 2012 (3,106 observations)
41–45	0.967	0.908	0.771	0.81
	[0.090]	[0.290]	[0.242]	[0.142]
46–50	0.932	0.43	0.406	0.755
	[0.100]	[0.178]*	[0.151]*	[0.149]
51–55	0.547	0.2	0.172	0.432
	[0.079]**	[0.111]**	[0.095]**	[0.109]**
56+	0.552	0.404	0.491	0.455
	[0.114]**	[0.281]	[0.308]	[0.148]*
VA rating (10 and 20 omitted)				
30 or 40	0.765	0.299	0.323	0.541
	[0.124]	[0.234]	[0.222]	[0.163]*
50 or 60	0.548	0.335	0.447	0.389
	[0.084]**	[0.250]	[0.294]	[0.109]**
70 or 80	0.373	0.236	0.245	0.286
	[0.055]**	[0.166]*	[0.153]*	[0.077]**
90 or 100	0.121	0.054	0.064	0.09
	[0.018]**	[0.038]**	[0.039]**	[0.025]**
Pending or under appeal	0.403	0.254	0.24	0.267
	[0.059]**	[0.179]	[0.147]*	[0.072]**
No rating	0.936	0.515	0.473	0.859
	[0.141]	[0.385]	[0.311]	[0.249]
Rank (E1–E4 omitted)				
E5–E9 (NCO)	1.441	1.456	1.363	1.456
	[0.094]**	[0.346]	[0.298]	[0.176]**
Warrant officer[a]	2.549			2.773
	[0.661]**			[1.376]*
O1–O3	3.26	5.616	6.101	4.201
	[0.445]**	[2.632]**	[2.958]**	[1.166]**
O4–O6	2.514	2.429	3.833	2.238
	[0.359]**	[1.236]	[1.826]**	[0.562]**

Table 3.29—Continued

Variable	Pooled Responses (8,960 observations)	Cohort: 2010, 2011, and 2012 (1,131 observations)	Cohort: 2010 and 2011 (969 observations)	Cohort: 2011 and 2012 (3,106 observations)
Injury type				
Amputation	1.303	1.398	1.386	1.234
	[0.147]*	[0.448]	[0.393]	[0.258]
Burn	0.981	0.962	1.026	1.307
	[0.133]	[0.348]	[0.366]	[0.315]
PTSD	0.875	0.747	0.627	0.94
	[0.060]	[0.205]	[0.149]*	[0.127]
Spinal cord	0.704	0.392	0.452	0.68
	[0.047]**	[0.090]**	[0.098]**	[0.080]**
TBI	0.883	1.003	0.934	0.883
	[0.049]*	[0.200]	[0.175]	[0.093]
Vision loss	0.817	1.258	1.056	0.922
	[0.117]	[0.441]	[0.459]	[0.218]
Other physical	0.893	0.905	0.99	0.895
	[0.046]*	[0.167]	[0.170]	[0.086]
Other mental	0.638	0.658	0.677	0.624
	[0.040]**	[0.150]	[0.152]	[0.072]**
No injury	1.385	0.879	0.666	2.064
	[0.245]	[0.949]	[0.610]	[0.742]*

NOTE: Robust standard errors are given in square brackets. ** = p < 0.01. * = p < 0.05.

[a] In the 2010–2012 and 2011–2012 cohort analyses, the probability of being employed is predicted perfectly for warrant officers, so warrant-officer observations are dropped from the regressions (15 and ten observations, respectively).

implies that individuals who are either unemployed (not working but actively looking for work) *or* NILF (not working and not actively looking for work) are coded as 0 for the dependent variable.[16]

Over time, respondents were more likely to indicate that they were employed part or full time or were self-employed. Those who are currently married are more likely to be working than those respondents who were previously or never married. The youngest and oldest (two

[16] Alternatively, we could have modeled the outcome using only those alumni who are in the labor force (working or actively looking for work). The chosen specification is consistent with the way WWP has measured its goal, which is the overall percentage of alumni who are working. Further, it is possible only for 2011 and 2012 to differentiate between unemployed and NILF; using the definition presented above, we do not sacrifice the use of 2010 data. A second alternative is to separately model full-time employment, part-time employment, and self-employment. Though not reported, results are similar across specifications and available from the authors upon request.

groups of) respondents are less likely to be employed than are 26- to 30-year-olds. Rank is positively correlated with the probability of working; NCOs and commissioned officers are more likely than junior enlisted respondents to be employed. Finally, individuals with higher disability ratings are less likely to be working, and respondents with mental health conditions or spinal-cord injuries are consistently less likely to be employed.[17]

The data in Tables 3.26 through 3.28 allow WWP to gauge the labor-market success of its alumni, but what may be more relevant from a policy perspective is targeting employment assistance programs toward those who are unemployed or perhaps out of the labor force but interested in working.[18] Table 3.1 showed that approximately half of all WWP survey respondents were either unemployed or NILF and that the unemployment rate was roughly 20 percent. Using the 2011 and 2012 full sets of responses, which included a question on whether the individual had actively searched for work in the previous four weeks, we compute the unemployment rate for the same subsets of the population we have considered up to this point. The results are presented in Table 3.30.

Although there are some differences across columns (full sets of responses and cohorts of repeat respondents), perhaps due to smaller sample sizes in the cohort columns, we generally

Table 3.30
Are Wounded Warriors Unemployed? Logit Model

		Cohort	
Variable	Pooled Responses (5,026 observations)	2010 and 2011 (407 observations)	2011 and 2012 (1,916 observations)
Female	0.856	0.457	0.869
	[0.118]	[0.576]	[0.238]
Year (2011 omitted)			
2012	1.071	1.068	0.947
	[0.079]	[0.265]	[0.094]
Service (Army omitted)			
Navy or Coast Guard	1.056	1.073	0.569
	[0.167]	[0.776]	[0.187]
Marine Corps	0.866	1.243	0.925
	[0.093]	[0.516]	[0.180]
Air Force	0.753	0.327	0.473
	[0.135]	[0.314]	[0.190]
More than one service	1.091	0.19	0.91
	[0.188]	[0.196]	[0.297]

[17] In the pooled response specification, coefficients on most of the injuries listed in the question indicate that individuals with those conditions are less likely to be employed than respondents who do not report those specific injuries.

[18] Using the survey questions, we are unable to identify individuals who are NILF (i.e., not actively searching for work in the past four weeks) but would like to be working (and are not because, for example, they are discouraged from searching).

Table 3.30—Continued

Variable	Pooled Responses (5,026 observations)	Cohort: 2010 and 2011 (407 observations)	Cohort: 2011 and 2012 (1,916 observations)
Marital status (married omitted)			
Previously married	2.185	1.224	2.483
	[0.205]**	[0.700]	[0.426]**
Never married	1.71	1.936	1.794
	[0.180]**	[1.049]	[0.364]**
Age (26–30 omitted)			
18–25	1.105	22.372	3.213
	[0.186]	[20.212]**	[1.000]**
31–35	0.993	1.448	1.134
	[0.101]	[0.665]	[0.215]
36–40	0.743	1.01	0.87
	[0.094]*	[0.541]	[0.201]
41–45	0.804	1.546	1.033
	[0.112]	[0.922]	[0.254]
46–50	0.58	1.056	0.742
	[0.100]**	[0.788]	[0.230]
51–55	1.051	4.973	1.49
	[0.234]	[3.896]*	[0.560]
56+	0.462	1.67	0.528
	[0.175]*	[1.766]	[0.299]
VA rating (10 and 20 omitted)			
30 or 40	1.541	2.371	1.982
	[0.342]	[3.344]	[0.821]
50 or 60	2.005	3.085	2.818
	[0.429]**	[4.226]	[1.118]**
70 or 80	2.152	4.315	2.832
	[0.457]**	[5.840]	[1.107]**
90 or 100	3.355	10.437	4.174
	[0.727]**	[14.333]	[1.647]**
Pending or under appeal	2.123	2.294	2.432
	[0.445]**	[3.297]	[0.969]*

Table 3.30—Continued

Variable	Pooled Responses (5,026 observations)	Cohort	
		2010 and 2011 (407 observations)	2011 and 2012 (1,916 observations)
No rating	0.758	1.327	0.875
	[0.171]	[2.220]	[0.385]
Rank (E1–E4 omitted)			
E5–E9 (NCO)	0.769	0.612	0.796
	[0.070]**	[0.246]	[0.132]
Warrant officer[a]	0.515		0.53
	[0.235]		[0.475]
O1–O3	0.446	0.169	0.455
	[0.094]**	[0.164]	[0.173]*
O4–O6	0.499	0.307	0.711
	[0.118]**	[0.266]	[0.268]
Injury type			
Amputation	0.584	0.435	0.661
	[0.107]**	[0.239]	[0.204]
Burn	0.925	0.537	0.799
	[0.190]	[0.366]	[0.268]
PTSD	1.042	3.113	1.052
	[0.106]	[1.790]*	[0.198]
Spinal cord	1.161	2.09	1.332
	[0.117]	[0.865]	[0.234]
TBI	1.092	0.612	1.05
	[0.091]	[0.229]	[0.158]
Vision loss	0.862	0.429	0.714
	[0.213]	[0.352]	[0.300]
Other physical	1.054	1.151	1.074
	[0.081]	[0.356]	[0.150]
Other mental	1.259	0.85	1.344
	[0.118]*	[0.370]	[0.230]
No injury	0.606		0.126
	[0.171]		[0.123]*

NOTE: Robust standard errors are given in square brackets. ** = $p < 0.01$. * = $p < 0.05$.

[a] In the 2011–2012 cohort analysis, the probability of being unemployed is predicted perfectly for warrant officers, so warrant-officer observations are dropped from the regressions (ten observations).

observe that the unemployment rate is higher among respondents (relative to the omitted categories for each characteristic) who were previously or never married, are younger, are junior enlisted, and have injuries causing higher levels of impairment (as measured by VA disability rating). These results are consistent with the employment outcomes measured in Tables 3.26 through 3.29.

Strategic Objective 3e: Increase the Percentage of Alumni Who Own Homes (with or Without Mortgages)

The next strategic objective we consider pertaining to employment and financial outcomes is home ownership. Respondents are asked to describe their living situation in the following question: "Which one of the following best describes your current living arrangement?" Available responses are as follows:

- live in military housing
- rent my home
- own my home, with an outstanding mortgage
- own my home, with no mortgage balance
- occupy dwelling with no payment of cash rent
- I live in transitional housing (i.e., temporary housing to help with the transition from homelessness to permanent housing).
- I live in Section 8 or other subsidized housing.
- I live in a supported housing program (i.e., housing for individuals with disabilities, mental health problems, or other special needs).
- I live in an assisted-living facility or nursing home.
- I am homeless or living in a shelter.

To measure strategic objective 3e, the third and fourth selections are combined to represent those respondents who own homes, regardless of the existence of a mortgage. Table 3.31 summarizes the overall results for the full sets of responses and the cohorts of repeat respondents. With the exception of the full set of responses in 2012, the rates of home ownership among all groups are meeting WWP's goals.

Table 3.32 contains home-ownership regression results for marital status, gender, age, pay grade, VA disability rating, and injury type. These results indicate that respondents in the Navy or Coast Guard are less likely to own their own home than are Army respondents. Moreover, married and higher-ranking respondents (including warrant officers) are also more likely to be homeowners. Home ownership is also strongly related to age: The older the respondent, the higher the probability that he or she owns a house.

Strategic Objective 3f: Reduce Alumni's Total Amount of Outstanding Debt, Excluding Mortgage, That Is Greater Than $20,000

The final strategic objective we evaluate is one relating to the level of nonmortgage debt the respondent has accumulated. Specifically, the survey asks, "Excluding the mortgage debt on

Table 3.31
Do Wounded Warriors Own Homes?

Survey	Baseline (wave 1)	2011 (wave 2)	2012 (wave 3)
Overall	54.75%	55.98%	51.07%
	(1.52)	(1.05)	(0.67)
2010, 2011, and 2012	62.04%	66.84%	68.65%
	(2.49)	(2.42)	(2.36)
2010 and 2011	59.59%	65.23%	
	(2.23)	(2.16)	
2011 and 2012		58.87%	59.88%
		(1.26)	(1.24)
Goal		55%	57%

SOURCE: Overall and cohort percentages were computed by Westat and compiled by WWP as it determined objectives and goals for its alumni. Table reproduced from materials provided by WWP.

NOTE: Standard errors are given in parentheses.

Table 3.32
Do Wounded Warriors Own Homes? Logit Model

		Cohort		
Variable	Pooled Responses (8,803 observations)	2010, 2011, and 2012 (1,114 observations)	2010 and 2011 (944 observations)	2011 and 2012 (3,055 observations)
Female	1.071	0.918	0.767	1.076
	[0.105]	[0.421]	[0.301]	[0.206]
Year (2010 omitted)				
2011	1.093	1.022	1.052	1.049
	[0.084]	[0.126]	[0.113]	[0.048]
2012	0.875	0.971		
	[0.063]	[0.134]		
Service (Army omitted)				
Navy or Coast Guard	0.777	0.492	0.459	0.655
	[0.090]*	[0.241]	[0.213]	[0.134]*
Marine Corps	1.019	1.257	1.447	1.11
	[0.083]	[0.374]	[0.389]	[0.175]
Air Force	1.303	23.6	10.843	1.67
	[0.163]*	[23.556]**	[12.040]*	[0.462]
More than one service	0.846	0.917	0.922	0.946
	[0.097]	[0.457]	[0.395]	[0.193]

Table 3.32—Continued

Variable	Pooled Responses (8,803 observations)	Cohort: 2010, 2011, and 2012 (1,114 observations)	Cohort: 2010 and 2011 (944 observations)	Cohort: 2011 and 2012 (3,055 observations)
Marital status (married omitted)				
Previously married	0.284	0.262	0.279	0.282
	[0.021]**	[0.076]**	[0.074]**	[0.038]**
Never married	0.298	0.087	0.111	0.249
	[0.025]**	[0.029]**	[0.030]**	[0.042]**
Age (26–30 omitted)				
18–25	0.477	0.533	0.271	0.389
	[0.070]**	[0.282]	[0.146]*	[0.142]**
31–35	1.433	1.298	1.248	1.478
	[0.107]**	[0.382]	[0.342]	[0.210]**
36–40	1.894	1.815	1.635	1.684
	[0.169]**	[0.703]	[0.563]	[0.284]**
41–45	2.617	1.844	2.124	2.144
	[0.257]**	[0.687]	[0.749]*	[0.399]**
46–50	3.396	3.205	3.4	2.987
	[0.393]**	[1.686]*	[1.514]**	[0.660]**
51–55	3.835	5.444	3.709	3.03
	[0.592]**	[3.600]*	[2.066]*	[0.850]**
56+	8.108	14.112	8.627	6.892
	[2.039]**	[10.376]**	[6.043]**	[2.868]**
VA rating (10 and 20 omitted)				
30 or 40	1.051	0.606	0.896	1.025
	[0.181]	[0.489]	[0.549]	[0.335]
50 or 60	1.316	1.814	1.745	1.434
	[0.211]	[1.317]	[0.945]	[0.440]
70 or 80	1.391	2.033	2.661	1.391
	[0.220]*	[1.455]	[1.413]	[0.414]
90 or 100	1.897	2.608	3.216	1.891
	[0.298]**	[1.840]	[1.686]*	[0.563]*
Pending or under appeal	0.885	1.003	1.007	1.234
	[0.138]	[0.736]	[0.549]	[0.370]

Table 3.32—Continued

Variable	Pooled Responses (8,803 observations)	Cohort		
		2010, 2011, and 2012 (1,114 observations)	2010 and 2011 (944 observations)	2011 and 2012 (3,055 observations)
No rating	0.75	0.546	0.634	0.866
	[0.119]	[0.405]	[0.355]	[0.271]
Rank (E1–E4 omitted)				
E5–E9 (NCO)	1.563	1.599	1.549	1.574
	[0.106]**	[0.419]	[0.382]	[0.205]**
Warrant officer[a]	4.077			5.341
	[1.136]**			[2.797]**
O1–O3	2.699	2.693	2.899	3.073
	[0.383]**	[1.364]	[1.509]*	[0.894]**
O4–O6	2.153	0.922	1.714	1.885
	[0.348]**	[0.603]	[1.132]	[0.541]*
Injury type				
Amputation	1.454	1.81	1.555	1.546
	[0.164]**	[0.681]	[0.539]	[0.332]*
Burn	1.17	1.013	1.212	0.773
	[0.162]	[0.429]	[0.442]	[0.191]
PTSD	0.896	0.784	0.714	0.916
	[0.065]	[0.223]	[0.182]	[0.134]
Spinal cord	0.948	1.06	1.06	0.808
	[0.069]	[0.323]	[0.295]	[0.104]
TBI	0.905	1.145	1.094	0.864
	[0.055]	[0.274]	[0.237]	[0.099]
Vision loss	1.549	2.36	3.964	2.182
	[0.238]**	[1.221]	[2.267]*	[0.695]*
Other physical	1.12	0.642	0.976	1.213
	[0.062]*	[0.134]*	[0.195]	[0.124]
Other mental	0.816	1.144	0.747	0.916
	[0.052]**	[0.268]	[0.172]	[0.107]
No injury	1.005	0.48	0.714	1.35
	[0.168]	[0.350]	[0.533]	[0.529]

NOTE: Robust standard errors are given in square brackets. ** = $p < 0.01$. * = $p < 0.05$.

[a] In the 2010–2012 and 2011–2012 cohort analyses, the probability of owning a home is predicted perfectly for warrant officers, so warrant-officer observations are dropped from the regressions (15 and ten observations, respectively).

your primary residence, what is the *total* amount of outstanding debt you have as of today?" with the following options from which to choose:

- $0 (none)
- less than $1,000
- between $1,000 and $4,999
- between $5,000 and $9,999
- between $10,000 and $19,999
- $20,000 or more
- don't know.

WWP's goal focused on those responding that they had $20,000 or more in nonmortgage debt, so we constructed a variable that took on a value of 0 for respondents who had $0 to $19,999 in debt and 1 if they reported having $20,000 or more in nonmortgage debt. Table 3.33 summarizes the percentage of respondents who had more than $20,000 in debt for the full sets of responses and the cohorts of repeat respondents. In both the 2011 and 2012 waves and across both the full sets of respondents and the cohorts of repeat respondents, WWP's goals of 41 and 39 percent are not being met.

Regression results for the probability of having debt in excess of $20,000 are shown in Table 3.34. Respondents who were previously or never married are less likely than those who are currently married to have nonmortgage debt in excess of $20,000. Younger respondents are less likely, and middle-age respondents more likely than those age 26 to 30, to have accumulated debt, as are NCOs and officers relative to junior enlisted respondents in the pooled and 2011–2012 cohort analyses.

Table 3.33
Do Wounded Warriors Carry More Than $20,000 in Nonmortgage Debt?

Survey	Baseline (wave 1)	2011 (wave 2)	2012 (wave 3)
Overall	42.93%	43.04%	43.19%
	(1.56)	(1.07)	(0.67)
2010, 2011, and 2012	47.92%	45.75%	49.32%
	(2.63)	(2.61)	(2.61)
2010 and 2011	45.71%	46.12%	
	(2.34)	(2.32)	
2011 and 2012		43.10%	44.56%
		(1.29)	(1.28)
Goal		41%	39%

SOURCE: Overall and cohort percentages were computed by Westat and compiled by WWP as it determined objectives and goals for its alumni. Table reproduced from materials provided by WWP.

NOTE: Standard errors are given in parentheses.

Table 3.34
Do Wounded Warriors Carry More Than $20,000 in Nonmortgage Debt? Logit Model

		Cohort		
Variable	**Pooled Responses (8,423 observations)**	**2010, 2011, and 2012 (1,075 observations)**	**2010 and 2011 (902 observations)**	**2011 and 2012 (2,946 observations)**
Female	0.994	0.885	0.839	0.879
	[0.088]	[0.327]	[0.289]	[0.147]
Year (2010 omitted)				
2011	0.979	0.867	0.927	0.986
	[0.074]	[0.112]	[0.105]	[0.057]
2012	0.982	0.941		
	[0.070]	[0.131]		
Service (Army omitted)				
Navy or Coast Guard	1.165	1.625	1.562	1.19
	[0.123]	[0.707]	[0.627]	[0.229]
Marine Corps	1.136	0.738	0.924	1.077
	[0.085]	[0.184]	[0.211]	[0.149]
Air Force	1.21	1.314	1.194	1.134
	[0.130]	[0.456]	[0.408]	[0.234]
More than one service	1.064	0.811	0.81	1.003
	[0.109]	[0.248]	[0.256]	[0.181]
Marital status (married omitted)				
Previously married	0.749	0.634	0.485	0.805
	[0.048]**	[0.149]	[0.113]**	[0.096]
Never married	0.513	0.342	0.521	0.453
	[0.041]**	[0.098]**	[0.140]*	[0.071]**
Age (26–30 omitted)				
18–25	0.553	0.4	0.195	0.532
	[0.076]**	[0.236]	[0.126]*	[0.161]*
31–35	1.086	1.086	1.094	1.186
	[0.078]	[0.257]	[0.261]	[0.157]
36–40	1.312	0.99	1.516	1.177
	[0.107]**	[0.280]	[0.406]	[0.175]
41–45	1.377	1.012	1.211	1.319
	[0.121]**	[0.283]	[0.356]	[0.212]

Table 3.34—Continued

Variable	Pooled Responses (8,423 observations)	Cohort		
		2010, 2011, and 2012 (1,075 observations)	2010 and 2011 (902 observations)	2011 and 2012 (2,946 observations)
46–50	1.299	1.446	1.709	1.387
	[0.129]**	[0.462]	[0.552]	[0.247]
51–55	1.174	0.419	0.539	1.006
	[0.158]	[0.217]	[0.279]	[0.238]
56+	1.27	1.201	1.704	1.265
	[0.216]	[0.531]	[0.868]	[0.327]
VA rating (10 and 20 omitted)				
30 or 40	1	2.068	1.708	0.742
	[0.163]	[1.377]	[0.906]	[0.217]
50 or 60	1.293	3.183	2.096	1.021
	[0.205]	[2.098]	[1.082]	[0.294]
70 or 80	1.244	3.045	2.303	0.947
	[0.190]	[1.898]	[1.077]	[0.264]
90 or 100	1.432	2.733	2.267	1.092
	[0.215]*	[1.662]	[1.021]	[0.299]
Pending or under appeal	1.005	1.255	1.114	0.714
	[0.153]	[0.815]	[0.540]	[0.200]
No rating	1.084	1.53	1.289	0.84
	[0.165]	[0.996]	[0.660]	[0.240]
Rank (E1–E4 omitted)				
E5–E9 (NCO)	1.311	1.526	1.305	1.295
	[0.083]**	[0.325]*	[0.275]	[0.150]*
Warrant officer	1.334	1.973	2.182	1.657
	[0.304]	[1.565]	[1.821]	[0.674]
O1–O3	1.523	1.571	1.343	1.81
	[0.196]**	[0.730]	[0.563]	[0.449]*
O4–O6	1.423	1.434	1.243	1.183
	[0.195]*	[0.672]	[0.561]	[0.294]
Injury type				
Amputation	0.902	0.784	0.918	0.966
	[0.090]	[0.186]	[0.212]	[0.173]

Table 3.34—Continued

Variable	Pooled Responses (8,423 observations)	Cohort		
		2010, 2011, and 2012 (1,075 observations)	2010 and 2011 (902 observations)	2011 and 2012 (2,946 observations)
Burn	0.915	1.205	0.953	0.894
	[0.114]	[0.356]	[0.292]	[0.190]
PTSD	1.144	0.725	0.99	1.126
	[0.078]*	[0.164]	[0.226]	[0.144]
Spinal cord	1.048	0.944	0.985	0.974
	[0.067]	[0.196]	[0.214]	[0.109]
TBI	0.978	1.052	0.96	0.957
	[0.053]	[0.190]	[0.169]	[0.095]
Vision loss	1.065	0.464	0.403	1.016
	[0.134]	[0.151]*	[0.151]*	[0.227]
Other physical	1.07	1.099	1.154	1.037
	[0.053]	[0.181]	[0.190]	[0.092]
Other mental	1.204	1.128	1.162	1.34
	[0.070]**	[0.219]	[0.241]	[0.136]**
No injury	1.123	0.956	0.759	0.859
	[0.182]	[0.522]	[0.392]	[0.287]

NOTE: Robust standard errors are given in square brackets. ** = $p < 0.01$. * = $p < 0.05$.

Summary

We considered five of the seven strategic objectives associated with economic empowerment:

- the percentage of alumni who complete associate's degrees, bachelor's degrees, or higher (3a)
- the percentage of alumni who complete business, technical, or vocational school (3b)
- the percentage of alumni who are employed full time or part time or are self-employed (3c)
- the percentage of alumni who own homes (3e)
- the percentage of alumni who have nonmortgage debt in excess of $20,000 (3f).

Results for the first three strategic objectives, as well as the regression measuring the probability of being unemployed, are similar. Married respondents are more likely than previously married or never-married respondents to be employed and more likely than previously married respondents to have associate's, bachelor's, or higher degrees and to be employed. As in the civilian literature, female respondents are more likely than male respondents to have a college education. Rank is positively correlated with educational and employment outcomes. Middle-age workers are more likely to be employed than younger and older workers, and respondents in the younger age categories are significantly more likely to be unemployed. Disability rating

tends to not be statistically associated with educational outcomes but is associated with higher likelihood of being unemployed (i.e., the higher the rating, the less likely it is that the respondent is employed). Finally, respondents with PTSD or TBI are less likely than those without these injury types to have associate's, bachelor's, or higher degrees. Married respondents are more likely than their previously married or never-married counterparts to own homes and have more than $20,000 in nonmortgage debt. Older respondents are both more likely to own homes and to have nonmortgage debt in excess of $20,000. Rank is positively correlated with home ownership.

CHAPTER FOUR

Comparisons with Related Studies

WWP requested that, where possible, we draw comparisons to related studies that examine these outcomes or metrics among the general population, or more ideally, other veteran populations. We now describe some of these other results found in the literature, but we caution once again that, in many cases, the findings are not directly comparable to those for WWP alumni. Specifically, one of the requirements for membership in WWP is that the individual have suffered a service-connected disability since 9/11, so one might expect that, along the dimensions with which WWP is concerned, alumni might fare worse than the general population or other veterans (many of whom do not have serious injuries from their time in service) because of their injuries.

Wounded Warrior Project Alumnus Characteristics

Table 3.1 in Chapter Three reported that 90 percent of WWP alumni had disability ratings of at least 50 percent, and 20 to 30 percent, depending on survey year, faced full 100-percent disability. We recommend that, with such a large percentage of WWP alumnus respondents reporting high disability ratings, an opportunity exists to help alumni by making sure they are aware of programs, such as SSDI and SSI, and assisting them with applying for benefits.

Strategic Objective 1a: Increase the Percentage of Alumni Visiting Health Care Professionals to Get Help with Such Issues as Stress, Emotional, Alcohol, Drug, or Family Problems (Increase Access to Care)

Our analysis found that institutional and cultural barriers and beliefs and preferences for treatment were the most frequently cited reasons for not seeking behavioral health treatment. Specifically, inconsistent or lapsed treatment, not being comfortable with existing resources, and fears of one's career being jeopardized (and "other") were the most commonly cited reasons for not obtaining mental health care. These results are similar to ones described by Schell and

Marshall (2008), who found that, among individuals with a possible need for mental health care services,

- 43.6 percent thought that seeking services could hurt their career
- approximately 25 percent thought both that good mental health care is not very effective and that the mental health treatments available are not very good
- 11.5 percent cited concerns that their friends and family would respect them less.

Strategic Objective 1e: Decrease the Percentage of Alumni Whose Military Experiences Were So Frightening, Horrible, or Upsetting That They Are Not Able to Escape from Memories or Effects of Them

Our analysis of strategic objective 1e included a metric from the literature: a positive screen for PTSD. We found one study that made use of the same criterion for PTSD screening is Milliken, Auchterlonie, and Hoge (2007), which used the Post-Deployment Health Reassessment[1] to estimate that 40 to 52 percent (depending on Army active component versus reserve component or NG membership) of military personnel returning from Iraq screen positive for PTSD (see Milliken, Auchterlonie, and Hoge, 2007).

Therefore, positive screenings for PTSD are higher among WWP alumnus respondents, regardless of demographic characteristic (prevalence ranges from 47 percent of respondents with some demographic characteristics to more than 80 percent for others), than among the soldiers studied in Milliken, Auchterlonie, and Hoge (2007). Although this is an important outcome, we may expect the rates to be higher among members of this group because of WWP's eligibility requirement that the service member or veteran have suffered a service-connected disability since 9/11.

Patient Health Questionnaire: Major Depressive Disorder

Related studies have found rates of probable depression, measured as those whose PHQ-8 scores suggest that the individual is experiencing moderate, moderately severe, or severe depressive symptoms, among veterans to be on the order of 15 percent.[2] WWP surveys suggest that approximately 60 percent of alumni screen positive for probable depression, a rate far in excess of those found in other studies. This is perhaps due to the fact that other studies make use of surveys of veterans, in general, while the sole criterion for membership in WWP is proof of a service-connected disability that occurred after 9/11. Therefore, WWP alumni are, by definition, more likely than the general veteran population to be facing physical or emotional limita-

[1] The Post-Deployment Health Reassessment is administered to all service members who return from a deployment in order to identify and address health concerns, with a specific emphasis on mental health, that have emerged over time since deployment. It is completed within 90 to 180 days after return to home station from deployment. See Deployment Health Clinical Center, undated.

[2] See Kroenke, Spitzer, and Williams, 2001. Schell and Marshall (2008) also makes use of a ten-point cutoff.

tions, possibly including depression.[3] That the rate is so high among alumni suggests that this ought to be an outcome that WWP monitors in future survey waves, and, more importantly, it may be an area toward which WWP targets some of its funding and future programming.

Strategic Objective 2b: Decrease the Percentage of Alumni Whose Physical Problems Interfere with Work or Regular Activities

The War Related Illness and Injury Study Center (WRIISC) administered a survey from 2004 to 2008 that generated a population of 429 OEF and OIF veterans that resembles the population of WWP respondents along several dimensions. A veteran is referred to the WRIISC if he or she has "complex health conditions and no known cause; had many tests and/or treatment with little to no symptom improvement; or possible deployment-related environmental exposures problems or concerns" (see WRIISC, 2013) and is therefore someone who likely faces postdeployment health concerns.

The mean-normed average for the Role–Physical scale was 43.3 among WRIISC veterans (Helmer et al., 2009). Although this population is similar to the WWP survey respondents in terms of age (mean = 33.5, standard deviation = 10.0) and gender (male = 83.9 percent), the majority of participants were unmarried (65.3 percent). Among unmarried (never married, separated, or divorced) WWP respondents, the average Role–Physical mean-normed score is 37.62 for 2010 and 38.74 for 2011. These lower scores suggest that these WWP respondents experience a greater negative effect of physical health on daily activities than similar OEF and OIF veterans who participated in the WRIISC surveys.

Strategic Objective 2e: Decrease the Percentage of Alumni Who Are Overweight or Obese

Among WWP survey respondents, 40 to 42 percent have BMIs in the obese range, and 81 to 83 percent are considered either overweight or obese. Two studies by medical researchers that examined the overweight and obesity rates among veterans who receive care at VA medical facilities provide points of comparison for the results found in the WWP surveys. Das et al. (2005) finds that, among VA patients in 2000, 68.4 percent of all women were at least overweight (overweight or obese), and 37.4 percent were considered obese. Among men, 73 percent were overweight or obese, and 32.9 percent were obese. Similarly, Nelson (2006) utilizes data from the 2003 Behavioral Risk Factor Surveillance System and estimated that, among veterans who used the VA for care, 44.5 percent were overweight and 27.7 percent were obese. Among veterans who received their health care outside of the VA, the overweight and obesity rates were 48.2 and 23.9, respectively. These results suggest that, although the percentage of overweight

[3] We note that Schell and Marshall (2008), whose study population was not limited to those with a service-connected disability, concluded that exposure to trauma remained the most important predictor of major depression. For instance, a respondent who experienced five traumas (such as having a friend who was seriously wounded or killed, or having a blow to the head from any accident or injury) is at more than four times the risk for depression that an observationally equivalent individual has. Therefore, it is not surprising that limiting the analysis to individuals whose service-connected disability may be correlated with trauma experienced while deployed produces rates of depression that are much higher than those seen in other studies.

WWP respondents is comparable to that in other samples of veterans, the percentage of obese respondents is higher among WWP alumni.[4]

Strategic Objective 3b: Increase the Percentage of Alumni Who Complete Business, Technical, or Vocational School (Certificate or Diploma)

As with the 2011 report on the first two waves of the survey, we recommend that WWP modify its calculation of the percentage of alumni with business, technical, or vocational degrees to include as a base only those individuals with less than high school diplomas, those with high school diplomas or GEDs, and those with business, technical, or vocational degrees.

Strategic Objective 3c: Increase the Percentage of Alumni Who Are Employed Full Time or Part Time or Self-Employed

In July 2010, the CPS, a monthly survey of 60,000 households in the United States that is conducted by BLS, contained a set of supplemental questions aimed at understanding the employment situation of veterans. These survey results provide a rich source of comparison data for those obtained in this section of analysis.[5]

The veterans' supplement found that, among Gulf War II–era veterans, the overall unemployment rate was 11.5 percent (11.4 percent for men and 12.0 percent for women) at the time of the survey. Rates were considerably higher among young veterans, especially in the 18- to 24-year-old range, in which unemployment figures are similar to those found in the WWP surveys (approximately 20 percent). However, a tabulation of age among WWP respondents reveals that only 3.23 percent are 24 years of age or younger. Therefore, the unemployment rate among WWP survey respondents is considerably higher than that of the sample of veterans in the CPS.[6]

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[4] The percentage of WWP respondents who are overweight can be computed by subtracting the obesity rates from overweight or obese rates. Doing so reveals that 41.18 percent of men and 38.8 percent of women were overweight in 2010, and 42.75 percent of men and 32.58 percent of women were overweight in 2011. These rates are lower than those cited above, which means that WWP respondents are less likely to be overweight than the rates presented in other studies but that obesity percentages remain higher among WWP respondents.

[5] The full news release can be found at BLS (2013).

[6] We caution again that, without information on the database of WWP alumni, we cannot be sure that the respondents are representative of the population of alumni. For instance, it might be the case that unemployed alumni have extra time (relative to those alumni who are working) to do all activities, including completing surveys. Therefore, if unemployed alumni are overrepresented in the subset of respondents, the unemployment rate will necessarily be biased upward.

CHAPTER FIVE

Conclusions and Discussion

This report takes an in-depth approach to the issues of mental health and resiliency, physical health, and employment and financial outcomes among WWP alumni. Specifically, we analyze a subset of survey questions that allow for the assessment of goals important to WWP. For each question, we examine whether certain respondent characteristics (e.g., gender, age, disability rating, injury type) are associated with different outcomes. In some cases, in which WWP has focused on a very specific response option or survey item, we broaden the definition of the characteristic to consider whether individuals are making use of different mechanisms to help them cope or whether they are indicating in some other way that they are experiencing difficulties.

We find consistencies in some subgroups of respondents across WWP's strategic domains. Specifically, female respondents, older respondents, and those with higher disability ratings make more use of health care options available to them. Men, younger respondents, officers, and those who are married or have lower disability ratings cope better with emotional problems and injuries and illnesses. Younger and single respondents report more favorably on their physical health. Junior enlisted are more likely to be overweight or obese. Female respondents are less likely than male respondents to be overweight or obese, and they also suffer greater impact on their physical activities due to their injuries. Finally, married respondents and officers are more likely to have higher levels of education, be employed, and own homes. Therefore, to the extent that WWP targets its programs toward certain subsets of the alumnus population, it is important to treat mental health, physical health, and employment outcomes separately and focus on wounded warriors who are most at risk within a specific domain.

Overall, the majority of WWP's goals in 2010 and 2011 are being met, according to the surveys. The exceptions are strategic objective 1g, respondents' ability to adapt or bounce back when faced with changes, injury, illness, or hardship, and strategic objective 2b, the percentage of individuals who are overweight or obese, which is reportedly higher than the goal WWP has established.

However, in the third wave of the survey in 2012, neither the behavioral health nor the physical health outcomes were meeting WWP's goals. The economic goals, however, were generally being met. The percentage of respondents with associate's, bachelor's, or higher degrees was well above WWP's goal. Employment outcomes were roughly in line with what WWP was hoping, with the exception of the rate of full-time employment, which was low. The percentage of respondents with nonmortgage debt in excess of $20,000 was also higher in both 2011 and 2012 than WWP's goal.

APPENDIX

Alternative Specifications of Wounded Warrior Project Goals

Table A.1
Do Wounded Warriors' Emotional Problems Result in Cutting Down the Amount of Time Spent on Work or Other Activities? Logit Model

		Cohort		
Variable	Pooled Responses (8,772 observations)	2010, 2011, and 2012 (1,127 observations)	2010 and 2011 (942 observations)	2011 and 2012 (3,057 observations)
Female	1.532	1.818	1.327	1.738
	[0.148]**	[0.824]	[0.485]	[0.306]**
Year (2010 omitted)				
2011	0.923	0.709	0.69	0.984
	[0.076]	[0.104]*	[0.088]**	[0.069]
2012	0.956	0.779		
	[0.074]	[0.117]		
Service (Army omitted)				
Navy or Coast Guard	1.042	1.161	1.213	1.018
	[0.121]	[0.508]	[0.523]	[0.208]
Marine Corps	1.096	1.355	1.35	1.3
	[0.084]	[0.349]	[0.321]	[0.185]
Air Force	1.178	0.625	0.815	0.817
	[0.143]	[0.300]	[0.379]	[0.187]
More than one service	1.056	0.685	1.001	1.073
	[0.124]	[0.201]	[0.355]	[0.222]
Marital status (married omitted)				
Previously married	1.214	1.205	0.904	1.317
	[0.084]**	[0.288]	[0.214]	[0.168]*
Never married	0.862	0.921	0.957	0.845
	[0.066]	[0.271]	[0.252]	[0.122]

Table A.1—Continued

Variable	Pooled Responses (8,772 observations)	Cohort		
		2010, 2011, and 2012 (1,127 observations)	2010 and 2011 (942 observations)	2011 and 2012 (3,057 observations)
Age (26–30 omitted)				
18–25	0.8	0.72	0.467	0.822
	[0.096]	[0.363]	[0.200]	[0.213]
31–35	1.263	1.518	1.269	1.454
	[0.093]**	[0.397]	[0.328]	[0.196]**
36–40	1.648	2.114	2.167	1.801
	[0.146]**	[0.641]*	[0.601]**	[0.286]**
41–45	1.558	1.746	1.791	1.518
	[0.149]**	[0.535]	[0.531]*	[0.266]*
46–50	1.986	6.464	4.168	2.804
	[0.217]**	[2.383]**	[1.535]**	[0.559]**
51–55	2.113	9.135	3.749	3.325
	[0.310]**	[6.097]**	[2.036]*	[0.777]**
56+	1.893	6.181	4.709	2.02
	[0.386]**	[3.898]**	[2.808]**	[0.600]*
VA rating (10 and 20 omitted)				
30 or 40	1.225	0.665	0.946	1.155
	[0.215]	[0.514]	[0.551]	[0.360]
50 or 60	1.672	0.944	1.932	1.486
	[0.280]**	[0.626]	[1.045]	[0.431]
70 or 80	1.924	0.933	1.91	1.686
	[0.312]**	[0.610]	[0.980]	[0.471]
90 or 100	2.395	1.178	2.184	2.054
	[0.387]**	[0.760]	[1.080]	[0.571]**
Pending or under appeal	1.825	1.054	2.189	1.544
	[0.294]**	[0.715]	[1.151]	[0.434]
No rating	1.143	0.469	0.863	1.049
	[0.186]	[0.315]	[0.451]	[0.301]

Table A.1—Continued

Variable	Pooled Responses (8,772 observations)	Cohort		
		2010, 2011, and 2012 (1,127 observations)	2010 and 2011 (942 observations)	2011 and 2012 (3,057 observations)
Rank (E1–E4 omitted)				
E5–E9 (NCO)	0.846	0.493	0.52	0.775
	[0.056]*	[0.122]**	[0.120]**	[0.095]*
Warrant officer	0.719	0.048	0.042	0.57
	[0.160]	[0.048]**	[0.043]**	[0.235]
O1–O3	0.696	0.855	0.758	0.611
	[0.091]**	[0.356]	[0.321]	[0.140]*
O4–O6	0.708	0.327	0.374	0.722
	[0.105]*	[0.181]*	[0.167]*	[0.177]
Injury type				
Amputation	0.477	0.557	0.673	0.5
	[0.051]**	[0.168]	[0.178]	[0.092]**
Burn	0.647	0.621	0.432	0.786
	[0.085]**	[0.231]	[0.150]*	[0.189]
PTSD	4.678	4.782	4.803	4.4
	[0.329]**	[1.237]**	[1.148]**	[0.584]**
Spinal cord	1.355	1.176	1.226	1.355
	[0.096]**	[0.283]	[0.281]	[0.163]*
TBI	1.281	1.563	1.335	1.328
	[0.073]**	[0.311]*	[0.254]	[0.138]**
Vision loss	0.772	1.608	1.097	0.825
	[0.111]	[0.797]	[0.538]	[0.205]
Other physical	1	0.837	0.831	1.085
	[0.053]	[0.144]	[0.148]	[0.100]
Other mental	2.822	3.809	2.783	3.158
	[0.208]**	[0.954]**	[0.649]**	[0.426]**
No injury	0.56	2.464	2.736	0.513
	[0.114]**	[1.691]	[1.845]	[0.225]

NOTE: Robust standard errors are given in square brackets. ** = $p < 0.01$. * = $p < 0.05$.

Table A.2
Do Wounded Warriors Have Difficulty Escaping the Memories or Effects of Frightening, Horrible, or Upsetting Deployment Experiences? Logit Model

		Cohort		
Variable	**Pooled Responses (8,623 observations)**	**2010, 2011, and 2012 (1,111 observations)**	**2010 and 2011 (922 observations)**	**2011 and 2012 (3,023 observations)**
Female	0.8	1.871	1.244	0.932
	[0.088]*	[0.986]	[0.624]	[0.195]
Year (2010 omitted)				
2011	1.016	0.937	0.892	1.182
	[0.109]	[0.184]	[0.151]	[0.104]
2012	0.928	0.75		
	[0.092]	[0.151]		
Service (Army omitted)				
Navy or Coast Guard	0.82	1.044	1.197	0.745
	[0.111]	[0.579]	[0.616]	[0.174]
Marine Corps	1.109	1.394	1.731	1.232
	[0.115]	[0.487]	[0.575]	[0.251]
Air Force	0.841	0.654	0.582	0.762
	[0.116]	[0.274]	[0.231]	[0.225]
More than one service	0.97	0.612	0.523	0.949
	[0.138]	[0.267]	[0.194]	[0.234]
Marital status (married omitted)				
Previously married	1.089	1.141	1.391	1.104
	[0.098]	[0.398]	[0.505]	[0.191]
Never married	0.846	1.504	0.921	1.29
	[0.081]	[0.527]	[0.286]	[0.258]
Age (26–30 omitted)				
18–25	1.046	0.357	0.382	0.894
	[0.166]	[0.234]	[0.191]	[0.336]
31–35	1.038	0.898	0.811	1.2
	[0.099]	[0.292]	[0.258]	[0.214]
36–40	1.128	1.715	1.416	1.716
	[0.122]	[0.672]	[0.499]	[0.357]**
41–45	1.303	1.515	1.399	1.932
	[0.155]*	[0.630]	[0.600]	[0.446]**

Table A.2—Continued

Variable	Pooled Responses (8,623 observations)	Cohort		
		2010, 2011, and 2012 (1,111 observations)	2010 and 2011 (922 observations)	2011 and 2012 (3,023 observations)
46–50	0.959	1.305	1.746	1.315
	[0.130]	[0.651]	[0.856]	[0.326]
51–55	1.122	3.718	3.003	1.491
	[0.203]	[3.318]	[2.762]	[0.457]
56+	1.048	0.936	0.912	1.298
	[0.235]	[0.510]	[0.459]	[0.466]
VA rating (10 and 20 omitted)				
30 or 40	1.356	2.616	0.783	1.813
	[0.260]	[1.939]	[0.531]	[0.613]
50 or 60	1.582	4.7	1.894	2.112
	[0.294]*	[3.400]*	[1.280]	[0.685]*
70 or 80	1.869	6.463	2.738	3.075
	[0.338]**	[4.391]**	[1.738]	[0.985]**
90 or 100	1.715	2.648	1.089	2.33
	[0.300]**	[1.745]	[0.655]	[0.714]**
Pending or under appeal	1.225	2.064	0.775	1.365
	[0.212]	[1.457]	[0.501]	[0.411]
No rating	1.03	0.686	0.289	1.377
	[0.179]	[0.469]	[0.183]*	[0.435]
Rank (E1–E4 omitted)				
E5–E9 (NCO)	0.931	0.703	0.795	0.871
	[0.077]	[0.210]	[0.220]	[0.136]
Warrant officer	0.848	0.578	0.75	0.521
	[0.239]	[0.612]	[0.717]	[0.237]
O1–O3	1.074	1.034	1.337	0.895
	[0.180]	[0.596]	[0.713]	[0.283]
O4–O6	1.149	2.794	3.165	1.033
	[0.213]	[1.798]	[2.721]	[0.337]
Injury type				
Amputation	0.488	0.572	0.546	0.51
	[0.060]**	[0.181]	[0.163]*	[0.109]**

Table A.2—Continued

Variable	Pooled Responses (8,623 observations)	Cohort: 2010, 2011, and 2012 (1,111 observations)	Cohort: 2010 and 2011 (922 observations)	Cohort: 2011 and 2012 (3,023 observations)
Burn	0.968	0.791	0.803	1.012
	[0.165]	[0.345]	[0.317]	[0.321]
PTSD	9.931	9.501	7.677	10.332
	[0.740]**	[2.728]**	[2.041]**	[1.450]**
Spinal cord	1.316	1.748	1.012	1.112
	[0.121]**	[0.576]	[0.319]	[0.176]
TBI	1.523	1.444	1.419	1.829
	[0.111]**	[0.356]	[0.335]	[0.248]**
Vision loss	0.659	0.599	0.895	0.454
	[0.113]*	[0.277]	[0.425]	[0.129]**
Other physical	1.084	1.078	0.924	1.037
	[0.073]	[0.242]	[0.206]	[0.126]
Other mental	1.875	2.482	3.1	1.885
	[0.171]**	[0.862]**	[1.074]**	[0.313]**
No injury	0.555	0.503	0.385	0.874
	[0.105]**	[0.400]	[0.242]	[0.355]

NOTE: Robust standard errors are given in square brackets. ** = $p < 0.01$. * = $p < 0.05$.

Table A.3
Can Wounded Warriors Adapt to Changes or Bounce Back from Illness, Injury, or Hardship? Logit Model

Variable	Pooled Responses (8,960 observations)	Cohort: 2010, 2011, and 2012 (1,146 observations)	Cohort: 2010 and 2011 (979 observations)	Cohort: 2011 and 2012 (3,106 observations)
Female	0.738	0.541	0.552	0.78
	[0.064]**	[0.181]	[0.161]*	[0.124]
Year (2010 omitted)				
2011	1.259	1.44	1.419	0.971
	[0.098]**	[0.202]**	[0.177]**	[0.060]
2012	1.402	1.233		
	[0.100]**	[0.167]		

Table A.3—Continued

Variable	Pooled Responses (8,960 observations)	Cohort		
		2010, 2011, and 2012 (1,146 observations)	2010 and 2011 (979 observations)	2011 and 2012 (3,106 observations)
Service (Army omitted)				
Navy or Coast Guard	0.923	1.362	0.954	0.882
	[0.102]	[0.527]	[0.366]	[0.175]
Marine Corps	1.07	1.118	0.896	1.131
	[0.080]	[0.281]	[0.201]	[0.163]
Air Force	0.857	1.279	1.141	1.03
	[0.095]	[0.454]	[0.389]	[0.213]
More than one service	0.929	1.362	1	0.798
	[0.094]	[0.376]	[0.293]	[0.146]
Marital status (married omitted)				
Previously married	0.977	0.821	0.822	0.891
	[0.062]	[0.188]	[0.171]	[0.106]
Never married	1.216	1.336	0.968	1.18
	[0.091]**	[0.373]	[0.233]	[0.168]
Age (26–30 omitted)				
18–25	1.094	1.984	3.005	1.408
	[0.135]	[1.045]	[1.535]*	[0.406]
31–35	0.923	0.909	0.859	0.826
	[0.066]	[0.227]	[0.211]	[0.110]
36–40	0.778	0.489	0.442	0.683
	[0.064]**	[0.146]*	[0.117]**	[0.103]*
41–45	0.809	0.678	0.672	0.655
	[0.072]*	[0.199]	[0.189]	[0.108]*
46–50	0.759	0.571	0.565	0.743
	[0.079]**	[0.205]	[0.188]	[0.139]
51–55	0.631	0.45	0.385	0.49
	[0.087]**	[0.207]	[0.176]*	[0.119]**
56+	0.817	0.341	0.384	0.593
	[0.151]	[0.154]*	[0.161]*	[0.170]
VA rating (10 and 20 omitted)				
30 or 40	0.856	0.622	0.566	0.64
	[0.144]	[0.481]	[0.365]	[0.197]

Table A.3—Continued

Variable	Pooled Responses (8,960 observations)	Cohort		
		2010, 2011, and 2012 (1,146 observations)	2010 and 2011 (979 observations)	2011 and 2012 (3,106 observations)
50 or 60	0.683	0.303	0.331	0.554
	[0.111]*	[0.229]	[0.211]	[0.164]*
70 or 80	0.586	0.292	0.354	0.476
	[0.092]**	[0.212]	[0.217]	[0.134]**
90 or 100	0.516	0.251	0.312	0.432
	[0.080]**	[0.183]	[0.189]	[0.120]**
Pending or under appeal	0.595	0.274	0.265	0.477
	[0.093]**	[0.203]	[0.170]*	[0.135]**
No rating	0.816	0.399	0.474	0.579
	[0.130]	[0.298]	[0.303]	[0.172]
Rank (E1–E4 omitted)				
E5–E9 (NCO)	1.152	1.441	1.206	1.192
	[0.072]*	[0.328]	[0.250]	[0.139]
Warrant officer	1.1	5.1	2.401	1.22
	[0.249]	[4.436]	[2.324]	[0.455]
O1–O3	1.979	1.46	1.753	2.059
	[0.277]**	[0.645]	[0.696]	[0.533]**
O4–O6	1.448	2.031	1.373	1.259
	[0.203]**	[0.948]	[0.535]	[0.313]
Injury type				
Amputation	1.87	1.715	1.814	1.693
	[0.203]**	[0.472]*	[0.462]*	[0.326]**
Burn	1.329	0.975	1.132	1.645
	[0.170]*	[0.366]	[0.364]	[0.380]*
PTSD	0.354	0.291	0.382	0.349
	[0.026]**	[0.078]**	[0.096]**	[0.049]**
Spinal cord	0.87	0.757	0.945	0.811
	[0.057]*	[0.165]	[0.202]	[0.095]
TBI	0.849	0.622	0.608	0.811
	[0.046]**	[0.118]*	[0.107]**	[0.080]*
Vision loss	1.075	1.331	1.208	0.968
	[0.142]	[0.515]	[0.428]	[0.223]

Table A.3—Continued

Variable	Pooled Responses (8,960 observations)	Cohort: 2010, 2011, and 2012 (1,146 observations)	Cohort: 2010 and 2011 (979 observations)	Cohort: 2011 and 2012 (3,106 observations)
Other physical	1.025	1.021	1.071	0.976
	[0.051]	[0.161]	[0.171]	[0.089]
Other mental	0.452	0.487	0.413	0.386
	[0.027]**	[0.104]**	[0.091]**	[0.042]**
No injury	1.519	0.813	0.494	1.194
	[0.322]*	[0.674]	[0.324]	[0.477]

NOTE: Robust standard errors are given in square brackets. ** = p < 0.01. * = p < 0.05.

Table A.4
Do Wounded Warriors' Physical Health Problems Interfere with Work or Regular Activities? Logit Model

Variable	Pooled Responses (8,699 observations)	Cohort: 2010, 2011, and 2012 (1,124 observations)	Cohort: 2010 and 2011 (943 observations)	Cohort: 2011 and 2012 (3,037 observations)
Female	1.416	0.888	0.867	1.449
	[0.133]**	[0.285]	[0.303]	[0.247]*
Year (2010 omitted)				
2011	0.862	0.682	0.671	0.989
	[0.071]	[0.098]**	[0.084]**	[0.071]
2012	0.828	0.68		
	[0.064]*	[0.105]*		
Service (Army omitted)				
Navy or Coast Guard	1.085	0.98	0.95	1.229
	[0.124]	[0.380]	[0.383]	[0.264]
Marine Corps	0.835	0.694	0.943	0.772
	[0.063]*	[0.161]	[0.220]	[0.107]
Air Force	1.058	1.123	1.139	1.209
	[0.129]	[0.499]	[0.570]	[0.300]
More than one service	1.083	0.893	0.974	1.11
	[0.124]	[0.279]	[0.357]	[0.228]
Marital status (married omitted)				
Previously married	0.9	1.05	0.802	0.796
	[0.063]	[0.255]	[0.177]	[0.104]

Table A.4—Continued

Variable	Pooled Responses (8,699 observations)	Cohort		
		2010, 2011, and 2012 (1,124 observations)	2010 and 2011 (943 observations)	2011 and 2012 (3,037 observations)
Never married	0.763	0.726	0.608	0.866
	[0.058]**	[0.190]	[0.159]	[0.122]
Age (26–30 omitted)				
18–25	0.977	0.521	0.38	0.849
	[0.115]	[0.279]	[0.167]*	[0.216]
31–35	1.148	1.085	0.962	1.386
	[0.085]	[0.262]	[0.243]	[0.183]*
36–40	1.694	1.423	1.442	2.208
	[0.148]**	[0.401]	[0.409]	[0.348]**
41–45	1.678	1.423	1.443	2.066
	[0.159]**	[0.441]	[0.443]	[0.355]**
46–50	1.955	3.503	3.1	2.638
	[0.213]**	[1.355]**	[1.278]**	[0.522]**
51–55	2.212	1.835	1.507	2.442
	[0.330]**	[0.842]	[0.741]	[0.574]**
56+	3.421	6.091	4.16	3.364
	[0.707]**	[4.386]*	[2.685]*	[1.001]**
VA rating (10 and 20 omitted)				
30 or 40	1.278	0.791	1.572	1.138
	[0.201]	[0.506]	[0.881]	[0.308]
50 or 60	1.739	1.041	2.525	1.643
	[0.264]**	[0.596]	[1.348]	[0.425]
70 or 80	1.995	2.264	4.809	1.907
	[0.292]**	[1.225]	[2.420]**	[0.476]**
90 or 100	3.08	2.213	4.063	2.685
	[0.448]**	[1.185]	[1.976]**	[0.664]**
Pending or under appeal	2.556	1.414	4.08	2.365
	[0.374]**	[0.785]	[2.240]*	[0.604]**
No rating	1.446	1.041	1.724	1.128
	[0.210]*	[0.580]	[0.889]	[0.291]

Table A.4—Continued

Variable	Pooled Responses (8,699 observations)	Cohort		
		2010, 2011, and 2012 (1,124 observations)	2010 and 2011 (943 observations)	2011 and 2012 (3,037 observations)
Rank (E1–E4 omitted)				
E5–E9 (NCO)	0.944	0.805	0.777	0.958
	[0.062]	[0.175]	[0.174]	[0.113]
Warrant officer	0.992	0.164	0.289	0.874
	[0.240]	[0.122]*	[0.275]	[0.363]
O1–O3	0.889	1.402	1.293	1.236
	[0.112]	[0.544]	[0.467]	[0.306]
O4–O6	0.724	0.614	0.715	0.859
	[0.107]*	[0.355]	[0.368]	[0.226]
Injury type				
Amputation	0.983	0.773	0.82	0.915
	[0.108]	[0.205]	[0.211]	[0.184]
Burn	0.688	0.899	0.659	0.851
	[0.089]**	[0.284]	[0.188]	[0.201]
PTSD	1.752	1.817	1.823	1.934
	[0.116]**	[0.411]**	[0.400]**	[0.241]**
Spinal cord	2.587	2.353	2.003	2.578
	[0.203]**	[0.612]**	[0.503]**	[0.341]**
TBI	1.681	1.453	1.226	1.736
	[0.095]**	[0.273]*	[0.232]	[0.176]**
Vision loss	0.976	1.113	1.376	0.946
	[0.152]	[0.467]	[0.617]	[0.267]
Other physical	1.848	1.101	1.176	1.862
	[0.097]**	[0.177]	[0.207]	[0.177]**
Other mental	1.739	2.312	1.897	1.759
	[0.118]**	[0.520]**	[0.432]**	[0.216]**
No injury	0.658	0.614	1.338	0.757
	[0.114]*	[0.413]	[0.782]	[0.270]

NOTE: Robust standard errors are given in square brackets. ** = $p < 0.01$. * = $p < 0.05$.

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WRIISC—*See* War Related Illness and Injury Study Center.

WWP—*See* Wounded Warrior Project.